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PARLIAMENT OF NEW SOUTH WALES.

REPORT

OF THE

DIRECTOR-GENERAL OF PUBLIC HEALTH,

NEW SOUTH WALES,

FOR 1939.

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PRESENTED BY THE MINISTER FOR PUBLIC HEALTH
(THE HON. H. P. FITZSIMONS, M.L.A.)

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B. G. Littler, Esq.	do	do
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Administrative Staff.

Director-General of Public Health and Commissioner for Venereal Diseases: E. Sydney Morris, M.D., Ch.M., D.P.H.

Senior Medical Officer of Health and Director Tuberculosis Division: Hugh Gilmour Wallace, M.B., B.S., D.P.H.

Metropolitan Medical Officer of Health: John Grahame Drew, M.B., B.Ch., M.R.C.S. L.R.C.P., D.P.H., D.T.M., D.T.H., F.R.San.I.

Assistant Medical Officer of Health: Bruce Robson Overend, M.B., Ch.M., D.P.H, D.T.M., D.T.H.

Secretary: John Valentine Boyle.

Divisions and Branches.

The following Divisions are controlled by the Director-General of Public Health:—Maternal and Baby Welfare; Tuberculosis; Social Hygiene (late Venereal Diseases); Industrial Hygiene; Government Medical Officers for Sydney; Medical Officers of Health, Metropolitan, Newcastle and Broken Hill Districts; Microbiological Laboratories, Sydney and Broken Hill; Chemical Laboratory; Health Education; Pure Food; Cattle Slaughtering;Sanitation; etc.

The Hospital Division comprises The David Berry Hospital, three State Hospitals and Homes, Waterfall Sanatorium (Tuberculosis) and Auxiliary at Randwick, Strickland Convalescent Hospital, Vaucluse, and the Leper Lazaret.

Legislative Enactments.

The Minister for Health is charged with the administration of the following Acts, for promotion of the Public health, execution of which is left to the Director-General of Public Health and the staff working under his control:—Cattle Slaughtering and Diseased Animals and Meat Acts, 1902–1932; Food Preservation by Sulphur Dioxide Enabling Act, 1920; Noxious Trades Act, 1902; Private Hospitals Act, 1909; Public Health Acts, 1902–1937, as amended by Act No. 50, 1924; Pure Food Act, 1908; Wine Adulteration Act, 1902; King George V and Queen Mary Maternal and Infant Welfare Foundation Act, 1937; and the Lady Edith Carpenter Land Vesting Act, 1937. Burials in closed cemeteries and the exhumation of bodies for the purpose of re-interment, etc., are also dealt with.

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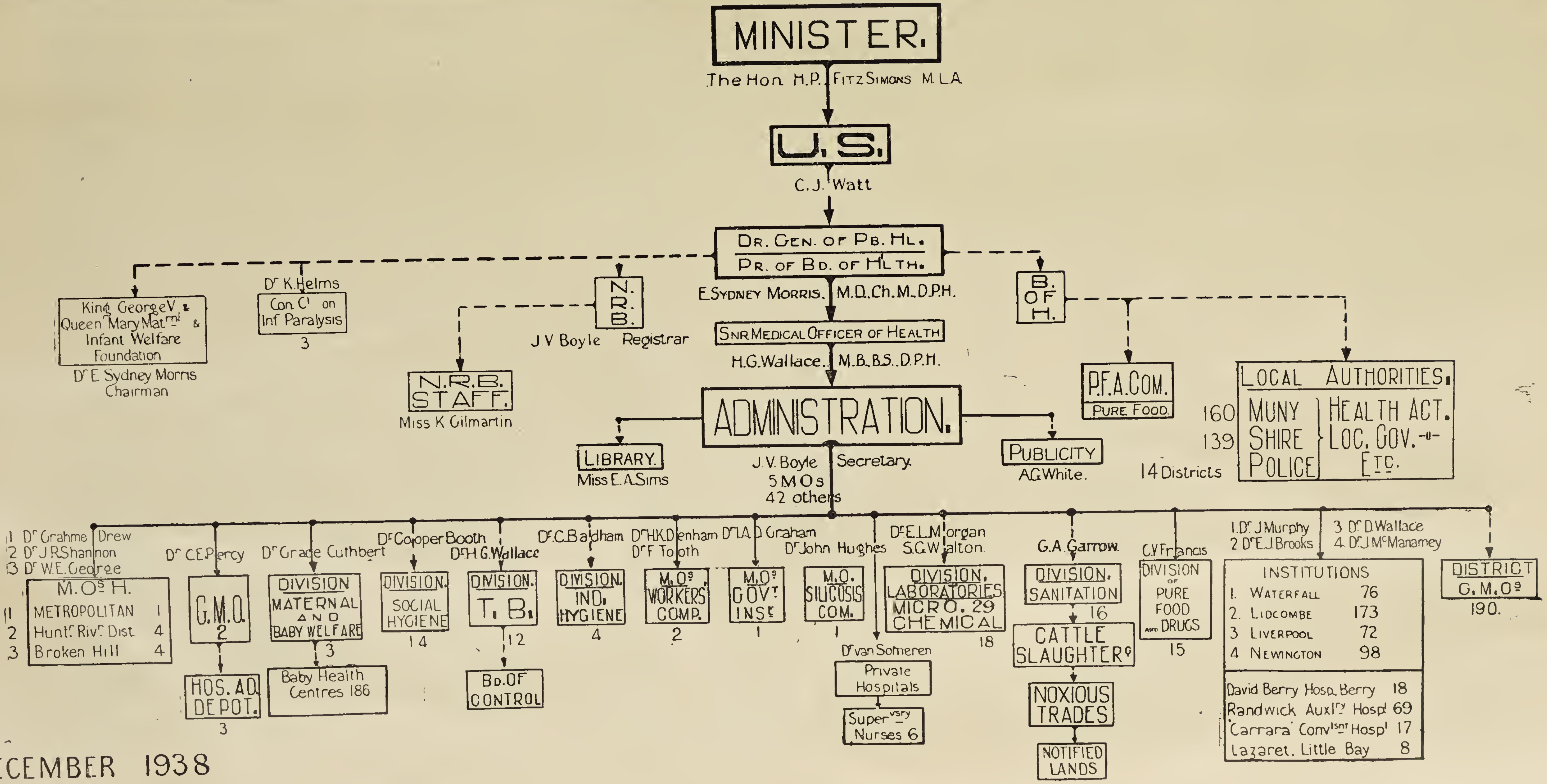
HEALTH DEPARTMENT.

OFFICE OF THE DIRECTOR GENERAL OF PUBLIC HEALTH.



DECEMBER 1938

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Report of the Director-General of Public Health to the Honorable the Minister for Health (The Hon. H. P. FitzSimons, M.L.A.)

Sir,

I have the honour to present my report on the work of this office for the year ended 31st December, 1939.

The various sections of the report have been abbreviated compared with previous years, but, as far as possible, essential information has been furnished.

VITAL STATISTICS. (See page 5.)

An extract from the Report of the Government Statistician on the Vital Statistics for the year 1939, is appended (page 5).

The population of New South Wales at 31st December, 1939, was 2,770,348 and the mean population for the year was 2,749,134. Live births numbered 48,003, equivalent to 17·46 per 1,000 of population. Still births numbered 1,360. Deaths from all causes totalled 26,815, a rate of 9·75 per 1,000 of population—this rate is 5 per cent. above the average of the previous 5 years. There were 1,969 deaths under one year of age, a rate of 41·02 per 1,000 live births.

INFECTIOUS DISEASES. (See page 7.)

Typhoid Fever.—63 cases with 13 deaths were notified; this is the lowest incidence of this disease yet recorded.

Scarlet Fever.—There were 3,190 cases and 11 deaths in 1939, an increase of 591 cases, but with one death less than in 1938.

Diphtheria.—4,103 cases were notified in 1939, or 168 more than in 1938.

Immunization Campaign.—The scheme in operation in New South Wales provides generally for co-operation between the State Government and the local governing bodies, the Government providing free all anatoxin used, and recouping Councils any cash loss sustained after they have met all expenditure incurred and collected small fees from any parents who are in a position to contribute.

Finalised claims received from Local Authorities to 31st December, 1939, were for the completion of 190,338 immunizations in their respective districts. To July, 1940, finalised claims for 215,800 immunizations had been received.

Acute anterior poliomyelitis (Infantile Paralysis).—During 1939, thirteen cases of anterior poliomyelitis were notified in the metropolitan area of Sydney.

In the remainder of the State, seventeen cases are known to have occurred.

The Consultative Council on Infantile Paralysis which is associated with this office investigated or supervised the treatment of 422 paralysed patients during the year.

An attempt was made to give vocational training to patients in hospital, but the facilities for doing this are very few. There is an urgent need to increase them.

TUBERCULOSIS DIVISION. (See page 62.)

During the year ended 31st December, 1939, notifications of pulmonary tuberculosis amounted to 1,687, a decrease of 110 cases compared with the year 1938. Of these 1,003 were males and 684 females.

In the metropolitan district, from which 1,299 cases were reported, there was a decrease of 105 cases; from the Hunter River District an increase of 11 cases; from the Broken Hill District, a decrease of 14 cases and from the rest of the State a decrease of 2 cases, compared with the previous year.

Attendances at the seven Anti-tuberculosis Clinics for the year ended 30th June, 1939, totalled 23,036.

An anti-tuberculosis Clinic was established at the Sydney Hospital in May, and at the Manly District Hospital a night X-ray clinic, the first to be established in this State, was opened in July.

Towards the end of the year arrangements were made for the radiography of the chest of persons suspected of tuberculosis but unable to pay the usual fee, and either unwilling or unable to attend at one of the Anti-tuberculosis Clinics. This examination is carried out in batches of thirty or more, under an arrangement with practising radiologists in Sydney, by means of miniature radiographic apparatus, and meets the needs of a considerable section of the public. The results have been very encouraging, and there can be no doubt that miniature radiography with modern apparatus has a definite place in tuberculosis prevention.

During the year the Red Cross Farm at Exeter was closed, an equivalent number of beds being made available at the Red Cross Sanatorium at Wentworth Falls. Further accommodation for "arrested" cases was made available at the Picton Lakes Village Settlement, where an additional "hostel" for six single men was opened. Two additional chalets were provided at the Queen Victoria Home at Thirlmere. Further accommodation at Government Sanatoria, it is hoped, will be provided during the coming year to meet the increasing demand for sanatorium beds.

Lectures and broadcasts on the subject of Tuberculosis have been given at intervals throughout the year by the Medical Officer of the Tuberculosis Division. By arrangement with several of the larger Municipalities in the Northern Rivers District, a series of lectures was given early in the year, and twenty lectures were delivered to District Conferences in country areas, arranged by the New South Wales Agricultural Bureau. By means of display-cards in trams and ferries, the screening of films, the distribution of pamphlets and by letter and personal interview, information on tuberculosis has been imparted to large numbers of the public throughout the year.

DIVISION OF SOCIAL HYGIENE. (See page 25.)

A total of 5,851 notifications of venereal disease was received during the year, a decrease of 345 on the number received during 1938.

There has been an increase in the number of cases of primary syphilis, 34·2 per cent. of the notifications during the year being for this stage of the disease. In 1938 the percentage was 17·5. At the Divisional Clinic, 176 cases of primary syphilis were found in 6,164 persons attending for examination, an incidence of 28·5 per 1000 as compared with 12 per 1,000 in 1938 and 2·6 per 1,000 in 1937.

During the year, 2,680 men made use of the prophylactic facilities at the Divisional Clinic, an increase of 305 over the previous year.

There has been continued success during the year with the use of " M & B 693 " in the treatment of gonorrhoea. The use of this drug has had a marked effect on the attendances at the Clinic, the total number of attendances for the year being 100,300, a decrease of 48,750.

A total of 50,792 serological tests and 22,323 examinations of smears for gonococci were carried out by the Microbiological Laboratory in 1939. The corresponding figures for 1938 were 46,752 and 24,712 respectively.

BUREAU OF MICROBIOLOGY. (See page 99.)

During 1939, 96,659 general laboratory examinations were carried out in addition to 4,708 examinations of rats for Plague.

The number of Serological examinations was again an increase on the previous year, 21,794 Wassermann tests and 21,073 Kahn tests.

The number of milk samples submitted by the Milk Board for determination of the bacteriological content was 819. Milk samples submitted for examination for Tubercle Bacilli and B. Abortus totalled 699. Of these one sample only was positive for Tuberculosis and 81 samples (11·5 per cent.) positive for B. Abortus.

The number of medico-legal examinations during the year was 1,070.

DIVISION OF INDUSTRIAL HYGIENE. (See page 68.)

This Division undertakes the investigation of hazards to health in factories, mines and industry generally, and the diagnosis of cases of occupational disease.

Further work has been carried out in the investigation of chemical and pathological conditions found in the lungs of coal miners. The report by Dr. C. Badham, Medical Officer of the Division, and Dr. H. B. Taylor, Second Government Analyst, now published on the result of these studies supplements that already published in the Report of the Director General of Public Health in 1936. The findings, chemical and pathological, of thirty lungs of coal miners are given and these provide further facts upon which to base a monograph that it is hoped to publish at a future date.

MATERNAL AND INFANT WELFARE DIVISION. (See page 46.)

1. Maternal Welfare.

The work of the Pre-natal Clinics (of which there are ten in the Metropolitan Area) has increased greatly during the year, the increase in attendances being 40 per cent. on the previous year, compared with an increase of 2 per cent. in 1938.

The new edition of the department's book " Healthy Motherhood," published in October, has been made more attractive and the demand for the book is increasing. Its educational value can scarcely be over-estimated; it not only points out the serious obligation on the part of the mother to seek regular medical supervision but indicates the standard of care that should be expected. It also includes accurate pictorial demonstrations of pre- and post-natal exercises.

The scheme for the reduction of maternal mortality in the Metropolitan Area was instituted at the beginning of the year. The Consultant Service is available for patients whose financial position will not permit them to pay consultants' fees. A medical practitioner who is faced with an obstetric difficulty or emergency may call upon any consultant whose name is on the official list for advice or assistance. A mobile blood transfusion unit is located at the Women's hospital, Crown Street, and is available at all times at the request of a medical practitioner. Donors are paid by the Department of Public Health. Eleven transfusions were given by the unit during the year, and seven consultations were arranged.

The sound film " Physiotherapy in Pregnancy and The Puerperium " made by the Department last year has been further utilized in the teaching of medical students and obstetric nurses. A copy has been purchased by the University of Melbourne and the film has been shown at post-graduate meetings in New South Wales and Queensland.

The maternal mortality rate in New South Wales for 1939, (excluding criminal abortions) was 3·4, compared to 3·82 in 1938. Every effort is being made to reduce the number of maternal deaths, each of which is reviewed by a medical committee. Arrangements for the control of puerperal infection, including bacteriological investigation of cases of puerperal pyrexia and of possible carriers of the highly infective Group A haemolytic streptococcus, have proved practical and effective.

2. INFANT WELFARE.

There are now 210 Baby Health Centres in New South Wales, eleven new centres having been opened during 1939. Eight additional appointments were made to the nursing staff, the personnel now numbering 183. Attendances at the centres totalled 852,422 an increase of over 50,000 compared with those of the previous year.

There has been little relative improvement in the neonatal death rate, but research work is being carried out in Sydney with a view to elucidating some of the problems of still birth and neonatal mortality.

SUPERVISION OVER FOOD AND DRUGS. (See page 39.)

The number of samples examined in the chemical laboratory in 1939 amounted to 33,972 an increase of over 300 samples compared with the previous year. The administration of the Pure Food Act necessitated the examination of 31,206 samples, while 2,766 samples were examined for the State public services. The milk samples examined totalled 21,696. The proportion of adulteration in the milk examined during the year was 2·59 per cent., a decrease of ·07 per cent. compared with the previous year's figure.

Consequent upon the amendment by the Milk Board of regulations under the Milk Act governing the pasteurisation of milk, whereby it is prescribed that only the holding process shall be used for the treatment of milk in the Metropolitan milk producing districts, consideration was given by the Health Department to the alteration of the standard for milk under the Pure Food Act in this respect. After reviewing all aspects of the question it was decided to recommend that milk in this State should be pasteurised only by the holding process.

Of the 2,766 samples submitted for examination by the State public services, 519 were submitted by the Police Authorities of which 11 were in regard to charges of being in possession of drugs in contravention of the Police Offences Amendment (Drugs) Act.

PRIVATE HOSPITALS. (See page 42.)

At the close of the year, there were 537 hospitals in New South Wales licensed under the Private Hospitals Act, 1908, having a total of 5,254 beds, which is a decrease of 12 hospitals but an increase of 30 beds on the figures for the previous year.

Since 1934 there has been a steady reduction in the number of private hospitals in the State, with a corresponding decrease in the number of beds licensed. Concurrent with this has been a marked increase in the number of beds in public hospitals (including private and intermediate beds), indicating a growing preference by the public for the community hospital with accommodation for all classes of patients.

All private hospitals are regularly inspected by departmental officers, and improvement in the general standard has been continued.

HOSPITAL ADMISSION DEPOT. (See page 44.)

At this branch, arrangements are made for admission to Metropolitan Hospitals, State Hospitals and Homes, and Convalescent Hospitals, a total of 16,471 cases being dealt with during the year. In addition, medical examinations are carried out for other Departments; recruits for the Police Force and sick Police are examined; the Reception House is visited daily by a medical officer and Vaccinations are carried out.

Medico-Legal Section.—This very important section of investigational work for the Police Department is carried out by the Government Medical Officer in co-operation with the Government Analyst and the Principal Microbiologist.

METROPOLITAN COMBINED SANITARY DISTRICT. (See page 90.)

The Metropolitan Medical Officer of Health, Dr. Grahame Drew, presents a considerably abridged report on the health conditions of the Metropolitan area. The estimated population of this area at the 31st December, 1939, was 1,380,940. Births numbered 20,699 and deaths 14,563 (a rate of 10·62 per thousand). The infant mortality rate was 34·54 per thousand live births. The maternal mortality rate was 4·64 per thousand live births compared with a rate of 5·67 during the previous year. If illegal operations be excluded the maternal mortality rate was 3·09 per 1000 live births.

Causes of Death in the Metropolis.—As a cause of death in the Metropolis, Pneumonia has declined to fifth place with a rate of 596 per million compared with 752 per million during the previous year.

Of the Epidemic Diseases, Diphtheria still shows a slight decline with 2,030 cases and 88 deaths. The number of notifications of Scarlet Fever was 1,997, an increase of 385 cases on the previous year's figure. Twenty-nine (29) cases of Typhoid Fever were notified compared with 37 during the previous year.

Dr. Drew stresses the importance of Local Authorities giving great care to all health problems as they arise, and mentions particularly the campaign against Diphtheria not being allowed to languish; also the continued need for inspection of homes for unhealthy conditions. Overcrowding is still a major problem. This state of affairs is being aggravated by the sub-division of houses and flats in order to provide homes for several families, a practice which is becoming more common.

HUNTER RIVER COMBINED SANITARY DISTRICT. (See page 91.)

Dr. J. R. Shannon in his report states that at the 31st December, 1939, the estimated population was 224,770 and the mean population for 1939 was 223,640. Live births during the year numbered 3,729, equivalent to a rate of 16·67 per thousand. There were 147 deaths of infants under one year giving an infant mortality rate of 39·42 per thousand live births. Deaths at all ages numbered 2,122 a rate of 9·49 per thousand of mean population.

Of the infectious diseases, 336 cases of Diphtheria were notified in 1939 compared with 424 cases in 1938. During the year, 3,034 children were immunized. There were 407 notifications of Scarlet Fever compared with 101 cases in 1938. Ten (10) cases of Typhoid Fever were notified during the year, three less than during the previous year.

Mosquito Survey.—During August, 1939, Mr. F. H. Taylor carried out a survey of the mosquito breeding grounds of the Greater City Area. Following this, immediate steps were taken by the Greater Newcastle Council to carry out the suggestions made by him.

Health Week.— The Health Week Campaign was again held, a special feature of which was Diphtheria immunization propaganda.

BROKEN HILL AND DISTRICT. (See page 93.)

The Medical Officer of Health, Dr. W. E. George, reports that the population of the district on the 31st December, 1939, was 28,968. The births during the year numbered 639 and the deaths 379.

During the year two Diphtheria Immunization Campaigns were carried out by the Municipal Council, a total of 1,871 children being immunized.

The total number of examinations carried out in the Laboratory was 10,497 compared with 9,141 during the previous year.

ACKNOWLEDGMENTS.

The work of this office has been very materially lightened throughout the year by the valuable assistance received from other public departments, and I desire once again to place on record my grateful thanks for the co-operation and help afforded, particularly by officers of the Commissioner of Police, the Government Statistician, Crown Solicitor, Government Printer, and the Departments of Local Government and Public Works, Lands Department, and the Department of Agriculture.

Assistance rendered by the Country Women's Association in connection with Baby Health Centre extensions has been invaluable, and their co-operation is deeply appreciated. I also wish specially to thank the many kindly citizens who have taken part in organising the many entertainments that have been given at the State Hospitals and Homes throughout the year, and also for their assistance in providing welcome gifts and good cheer for the inmates at Christmas.

Grateful thanks are also tendered to the proprietors of many picture theatres for their co-operation and assistance in the display of Departmental films.

In conclusion, I must acknowledge, with sincere gratitude, the loyal co-operation and efficient assistance extended to me by all sections of the staff throughout the year.

E. SYDNEY MORRIS,
Director-General of Public Health.

Extract from the Report of the Government Statistician, Mr. S. R. Carver, on the Vital Statistics of New South Wales for the year 1939.

Population.—The population at the end of 1939 was 2,770,348, of whom 1,396,224 were males and 1,374,124 females, the proportion being 102 males to 100 females. During the year the population increased by 34,653, or 1·27 per cent. Of this increase the excess of births over deaths accounted for 21,188, and the excess of arrivals over departures for 13,465. The mean population was 2,749,134.

Live Births.—The total number of live births was 48,003, equivalent to 17·46 per 1,000 of population, which is 2 per cent. above the average of the previous five years. Of this number, 24,557 were males and 23,446 females, the proportion being 105 males to 100 females.

Dividing the State into the Metropolis and Remainder of the State, there were 19,323 births in the former, and 28,680 in the latter, corresponding to rates of 14·93 and 19·71 respectively.

Stillbirths.—The number of stillbirths registered was 1,360 (789 males and 571 females), which is 2·76 per cent. of all births, live and still, and equal to 0·49 per 1,000 of population.

Deaths.—The deaths during the year numbered 26,815, equivalent to a rate of 9·75 per 1,000 of the population. This rate is 5 per cent. above the average of the previous five years.

The total includes 15,116 males and 11,699 females, equivalent to rates of 10·91 and 8·58 respectively per 1,000 of population. The rate in the metropolis was 10·53 per 1,000, and in the Remainder of the State, 9·07.

Of the 26,815 people who died during the year 2,646 were under 5 years of age, 11,131 were aged from 5 to 64, and 13,038 were 65 and over. The rates per 1,000 living in the main groups under and over 5 years were 11·89 and 9·57 respectively, as compared with 11·75 and 9·22, the average of the previous five years.

Infantile Mortality.—The number of children under 1 year of age who died was 1,969, equal to 41·02 per 1,000 live births. To this total the Metropolis contributed 663, or 34·31 per 1,000 live births, and the Remainder of the State, 1,306, or 45·54 per 1,000 live births. The rate for 1939 is 3 per cent. below the average of the previous 5 years. Of the deaths under 1 year of age 1,102, or 56 per cent., occured under 1 week, 1,317, or 67 per cent., under 1 month, and 1,436, or 73 per cent., under 3 months.

Causes of Death.—Of the deaths during the year, the most important causes were as shown in the following statement, which, for purposes of comparison, also gives the average number of deaths during the preceding 5 years, due allowance having been made for increase in population.

Causes of Death.	Number, 1939.	Average Annual Number, 1934-38. *	Increase (+) or Decrease (—) in 1939.
			per cent
Typhoid Fever	13	20	— 34
Measles	100	30	+230
Scarlet Fever	11	19	— 42
Whooping Cough	21	132	— 84
Diphtheria and Croup	192	187	+ 3
Influenza	335	332	+ 1
Plague	...	...	...
Erysipelas	8	19	— 59
Infantile Paralysis (Notifiable and non-notifiable forms.)	6	15	— 59
Lethargica Encephalitis ,, ,,	5	11	— 54
Epidemic Cerebro-spinal Meningitis	6	6	— 3
Other Epidemic Diseases	23	22	+ 3
Tuberculosis, Respiratory System	922	985	— 6
Tuberculosis, Meninges and Nervous System	35	35	— 1
Other Tuberculous Diseases	54	60	— 10
Cancer	3,107	2,893	+ 7
Diabetes	475	452	+ 5
Other General Diseases	601	605	— 1
Diseases of the Blood	196	235	— 17
Chronic Poisonings and Intoxications	30	26	+ 14
Meningitis	93	109	— 15
Cerebral Haemorrhage and Apoplexy	793	737	+ 8
Insanity	86	84	+ 2
Convulsions of Infants	7	13	— 45
Other Diseases of the Nervous System	687	623	+ 10
Diseases of the Heart	7,138	6,260	+ 14
Diseases of the Arteries, Atheroma, etc.	1,681	1,498	+ 12
Other Diseases of the Circulatory System	57	37	+ 53
Bronchitis	277	279	— 1
Pneumonia	1,608	1,771	— 9
Other Diseases of the Respiratory System	307	276	+ 11
Diseases of the Stomach	153	134	+ 14
Diarrhoea and Enteritis (under 2 years)	198	145	+ 37
Diarrhoea and Enteritis (2 years and over)	125	100	+ 24
Appendicitis	250	249	...
Hernia, Intestinal Obstruction	219	217	+ 1
Cirrhosis of the Liver	129	111	+ 16
Other Diseases of the Digestive System	394	400	— 1
Bright's Disease (Acute and Chronic)	1,408	1,583	— 11
Other Genito-urinary Diseases	412	405	+ 2
Criminal Abortion	38	50	— 24
Puerperal Septicaemia (includes Post Abortive Sepsis)	38	65	— 42
Other Puerperal Diseases	124	153	— 19
Malformations	290	270	+ 8
Congenital Debility	93	91	+ 2
Premature Birth	628	646	— 3
Other Developmental Diseases	354	374	— 5
Senility	784	756	+ 4
Suicide	329	330	...
Accident	1,678	1,298	+ 29
Other Violence	96	120	— 20
All other causes	201	207	— 3
Total	26,815	25,475	+ 5

* Adjusted to the mean population of 1939, viz., 2,749,134.

Epidemic Diseases.—The deaths from epidemic diseases numbered 720, as compared with an adjusted average of 793 during the previous five years, being a decrease of 9 per cent. The deaths from scarlet fever numbered 11, an experience which was 42 per cent. less than the average rate of the previous five years.

Tuberculosis of the Respiratory System was the cause of 922 deaths in 1939, the rate 335 per million living, being 6 per cent. below the average rate of the previous five years. The deaths of males numbered 592, and of females, 330, and the rates per million living were 427 and 242 respectively. The mortality rate from other tuberculous diseases was 7 per cent. below the average of the previous five years.

Cancer.—The deaths from cancer numbered 3,107, equal to a rate of 1,130 per million living, and per cent. above the average rate of the preceding quinquennial period. The deaths of males numbered 1,590, and of females 1,517, the rates for each sex being 1,148 and 1,112 per million respectively. The death-rate from this disease has been increasing steadily for a number of years.

Cerebral Haemorrhage.—To cerebral haemorrhage and apoplexy during 1939 were ascribed 793 deaths, of which 346 were those of males and 447 of females. The rate was 288 per million living, or 250 for males and 328 for females. The rate for 1939 was 8 per cent. above that for the previous quinquennium. The Government Statistician points out, however, that considerations of certification and classification have rendered this comparison unreliable.

Diseases of the Heart were the cause of 7,138 deaths, the rate being 2,596 per million. The apparent increase in these deaths during the last thirty years is probably the result of the greater attention given to pathological diagnosis. Furthermore, in combination with other diseases, where precise information is lacking, diseases of the heart are given precedence over many other diseases. The rate for deaths from heart diseases in 1939 was 14 per cent. above the average rate of the preceding five years. Of the total deaths, 4,195 were of males and 2,943 females, the corresponding rates per million living of each sex being 3,028 and 2,158.

Bronchitis and Pneumonia.—Bronchitis, with 277 deaths, equal to a rate of 101 per million living, showed a decrease of 1 per cent., and pneumonia, with 1,608 deaths, or 585 per million, a decrease of 9 per cent., as compared with the experience of the previous five years.

Of the deaths from bronchitis, 163 were of males and 114 of females, or 118 and 84 per million living respectively. Of the persons who died from pneumonia, 935 were males and 673 were females, and the rates were 675 and 493 per million living of each sex.

Nephritis Italico.—During 1939 there were 1,820 deaths due to diseases of the genito-urinary system, of which 1,408 were caused by nephritis (acute and chronic). The rate for nephritis was 512 per million living; for males 566 per million, and for females 458 per million. In 1939 the rate was 11 per cent. below the average of the previous five years. The general tendency of the rate has been to increase.

Diseases of Infants.—The principal causes were prematurity, 628; congenital malformations 234, other developmental diseases 447, diarrhoea and enteritis 155, pneumonia 186, epidemic diseases 71 (including measles 22, whooping cough 12, influenza 15, diphtheria 14), bronchitis 11, and meningitis 20.

The following statement shows the deaths of children under 1 year of age per 1,000 live births, classified in the principal disease groups, during 1939 in comparison with the preceding five years :—

Causes of Death.	Males.		Females.		Total.	
	1939.	1934–38.	1939.	1934–38.	1939.	1934–38.
Epidemic Diseases	1·38	2·42	1·58	2·61	1·48	2·52
Tuberculous Diseases	·16	·20	·04	·11	·10	·15
Syphilis	·08	·14	·13	·12	·10	·13
Meningitis	·41	·58	·43	·37	·42	·48
Convulsions	·20	·19	...	·15	·10	·17
Bronchitis	·29	.49	·17	·33	·23	·41
Pneumonia	4 60	4·92	3·11	3·88	3·88	4·41
Diarrhoea and Enteritis	3·79	2·69	2·64	2·07	3·23	2·39
Malformations	5·58	5·31	4·14	4·16	4·88	4·75
Congenital Debility	2·08	2·20	1·79	1·64	1·94	1·93
Premature Birth	14·66	14·88	11·43	12·48	13·08	13·71
Injury at Birth	5·17	4·99	3·46	3.66	4·33	4·34
Other Diseases of Early Infancy	3·42	4·09	2·64	3·08	3·04	3·59
Other Causes	4·44	3·74	3·97	2·93	4·21	3·34
All Causes	46·26	46·84	35·53	37·59	41·02	42·32

SECTION I.—A.

COMMUNICABLE DISEASES.

1.—NOTIFIABLE INFECTIOUS DISEASES RECORDED IN NEW SOUTH WALES DURING THE YEAR ENDED 31ST DECEMBER, 1939.

Public Health Acts, 1902–1937.

The Public Health Act, 1902, provides that the Governor may, by proclamation in the *Government Gazette,* declare that any disease therein named is an infectious disease.

	Notifiable from—	Cases and Deaths Notified.					
		1937.		1938.		1939.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever and paratyphoid	1st January, 1898	118	18	91	20	63	13
Scarlet fever	"	2,493	17	2,599	12	3,190	11
Diphtheria or membraneous croup	"	4,244	143	3,935	156	4,103	192
Bubonic plague	23rd January, 1900	...	...	...	...	...	...
Infantile paralysis (including any form of acute anterior poliomyelitis, polioencephalitis or polio-myeloencephalitis)	1st February, 1912. Definition Re-proclaimed 14th August, 1931	70	5	658	19	33	2
Epidemic cerebro-spinal fever (meningococcal meningitis)	11th October, 1915	17	7	22	7	22	6
Encephalitis Lethargica	1st April, 1926	9	4	11	10	6	4
Cholera	12th August, 1927	...	...	...	...	...	...
Typhus fever	"	5	...	7	...	...	...
Yellow fever	"	...	...	...	...	...	...
Puerperal infection	16th August, 1929	241	52	259	47	244	38
Undulant fever	13th August, 1937	2	...	1	1	...	...
Leprosy	25th February, 1938	...	...	...	2	...	2
	Total	7,199	246	7,583	274	7,661	268
	Population at 31st Dec.	2,710,738		2,735,695		2,770,348	

Public Health Act, 1902.

A total of 7,661 cases of infectious disease was notified under the Public Health Act, 1902, during 1939, or 78 more cases than in 1938. The number of cases notified from the 160 municipal, 139 shire and 14 police districts; the deaths due to these infections; the age and sex of the patients; and the seasonal incidence of the various diseases are shown in appended Table I-IV (pp. 10-23). As indicated below, pulmonary tuberculosis is notifiable under the Public Health (Amendment) Act, 1915; and venereal diseases under the Venereal Diseases Act, 1918.

Typhoid Fever.—The 63 cases and 13 deaths notified in 1939 show the lowest incidence of this infection hitherto recorded. In 1938 there were 91 cases and 20 deaths.

Scarlet Fever.—There were 3,190 notified cases and 11 deaths, an increase of 591 cases as compared with 1938 when 2,599 cases and 12 deaths were recorded.

Diphtheria.—There were 4,103 notified cases and 192 deaths, in comparison with 3,935 cases and 156 deaths in 1938.

Infantile Paralysis.—33 cases and 2 deaths were notified. In 1938 there were 658 cases with 19 deaths.

Puerperal Infection.—244 cases were notified, or 15 less than in 1938. The recorded deaths were respectively 47 in 1938 and 38 in 1939.

Cerebro-Spinal Meningitis.—22 cases and 6 deaths were reported in 1939. In 1938 there were 22 cases and 7 deaths.

Encephalitis Lethargica.—Six cases and 4 deaths were notified, compared with 11 cases and 10 deaths in 1938.

Undulant Fever.—On 13th August, 1937, a proclamation was issued making undulant fever notifiable on and from that date.

Bubonic Plague.—No case of this disease has been reported since June, 1923. Rat-catchers are continuously employed in the vicinity of wharves and in the City area. Plague was not detected in the 4,653 rats examined in the Microbiological Laboratory.

Smallpox.—No case was reported during 1939.

Leprosy.—No case of leprosy was notified in 1939, but 2 patients under detention in the Lazaret died during the year. For the Report on Leprosy in New South Wales see p. 94.

Public Health (Amendment) Act, 1915.

Pulmonary Tuberculosis was made a notifiable disease under an amendment of the Public Health Act in 1915. In 1939 notified cases amounted to 1,687, a decrease of 110 on the notifications received in 1938. There were 922 deaths, or a decrease of 24 compared with the deaths recorded in 1938. A survey by the Director of the Tuberculosis Division is on p. 62.

Venereal Diseases Act, 1918.

Cases of venereal disease notified in 1939 numbered 5,851, a decrease of 345 cases on the number (6,196) received in 1938. The Report of the Director of the Division is on p. 25.

GRAPH No. 2.

ANNUAL DEATH RATE PER 1,000 OF THE POPULATION IN NEW SOUTH WALES, 1875-1939.

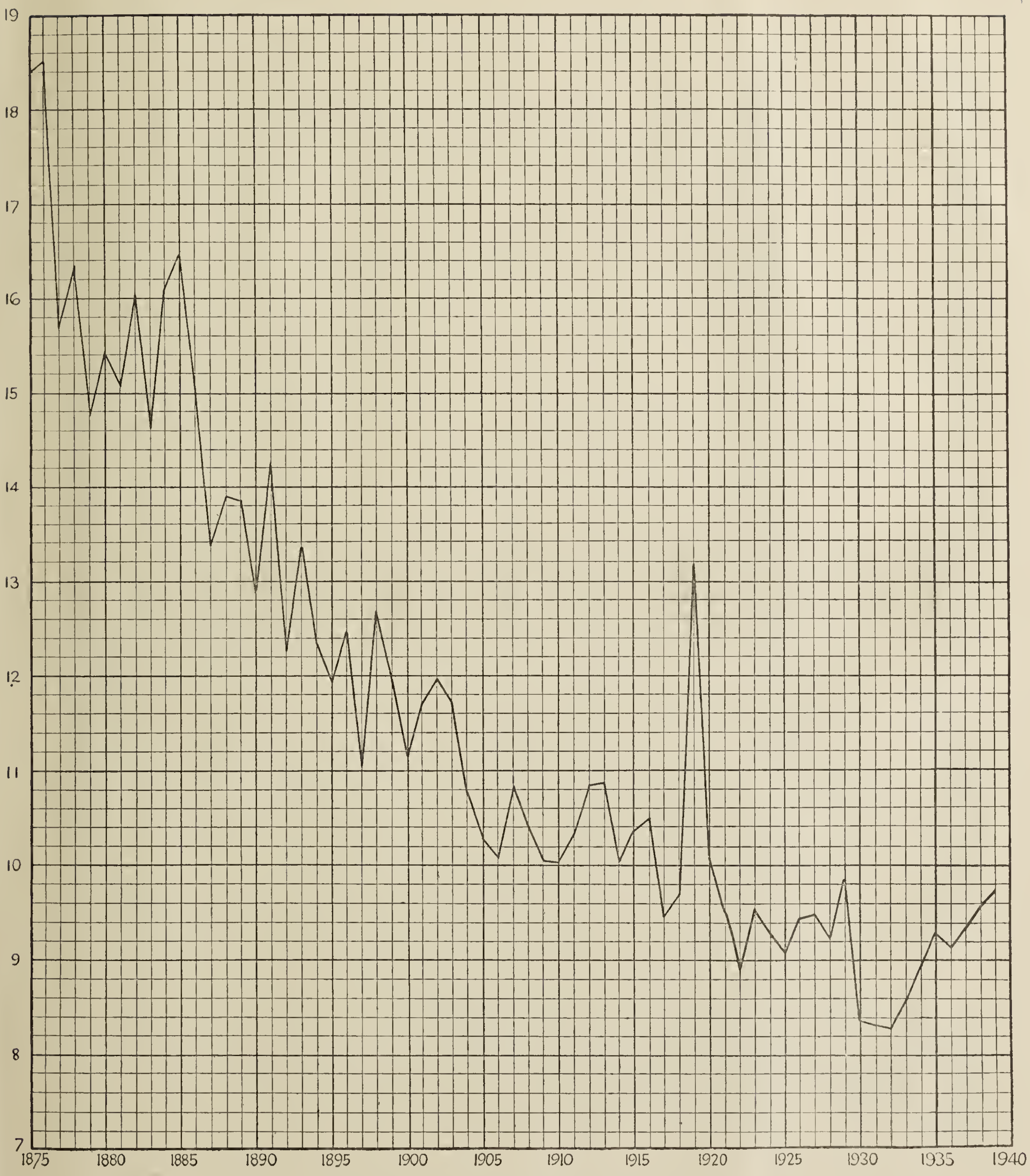


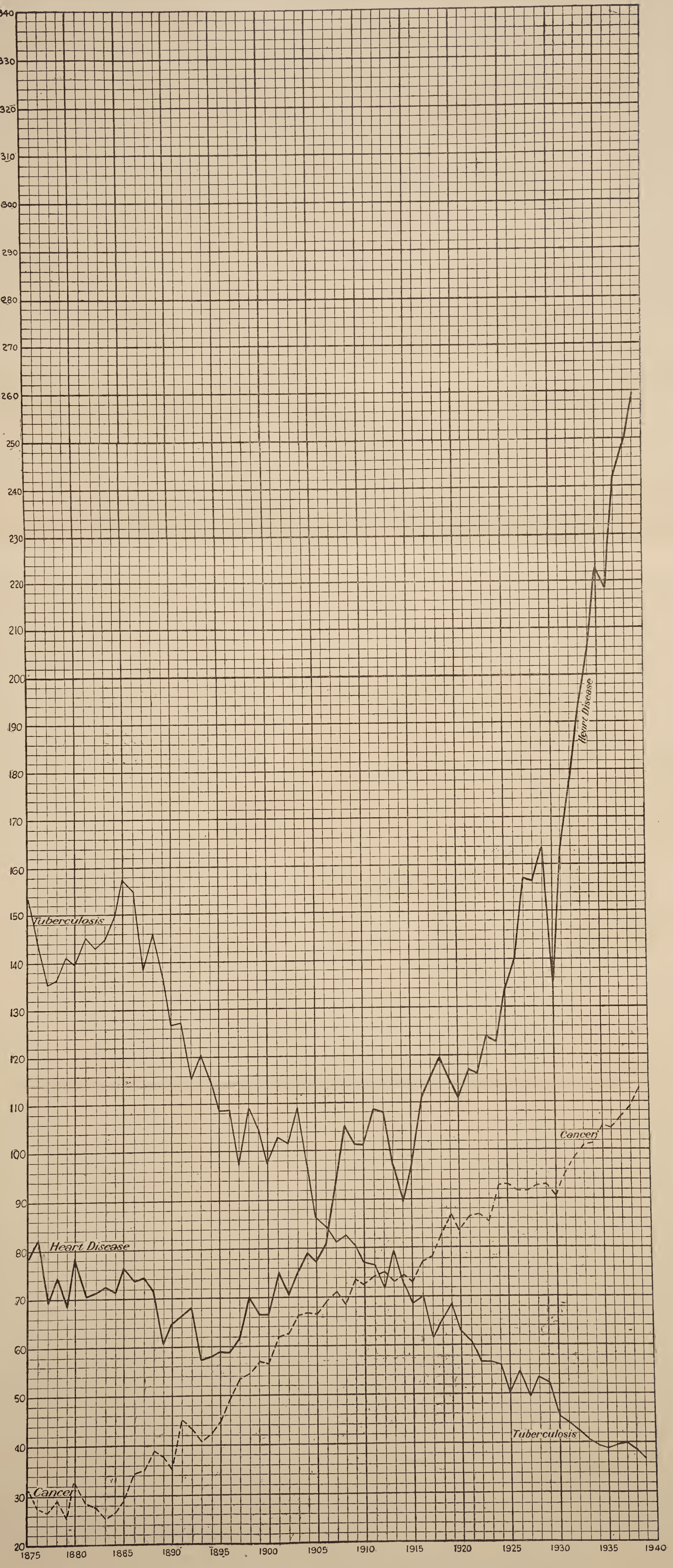
TABLE I.—Showing the number of notified cases of, and deaths from, the following diseases:—Cerebro-spinal Fever (Meningococcal Meningitis), Diphtheria and Membranous Croup, Encephalitis Lethargica, Infantile Paralysis (Acute anterior Poliomyelitis), Scarlet Fever, Typhoid Fever (including Paratyphoid), and Puerperal Infection in the METROPOLITAN COMBINED DISTRICTS for the year ended 31st December, 1939.

Municipality or Shire.	Estimated Mean Population.	Typhoid and Paratyphoid.		Scarlet Fever.		Diphtheria.		Infantile Paralysis.		Cerebro-spinal Meningitis.		Encephalitis Lethargica.		Puerperal Infection.	
		C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
						METROPOLITAN MUNICIPALITIES.									
Sydney, City of	88,940	2	...	123	...	158	5	1	...	2	1	...	...	31	...
Alexandria	8,560	...	...	13	...	17	...	...	...	...	...	...	...	2	...
Annandale	11,830	1	...	14	...	29	1	...	...	...	...	...	...	2	1
Ashfield	40,850	...	...	29	...	66	3	...	...	...	...	...	...	5	...
Auburn	20.570	...	...	23	...	64	2	1	...	1	...	...	...	2	...
Balmain	27,630	1	...	60	1	105	1	...	...	1	...	...	...	2	...
Bankstown	28,000	2	1	61	...	56	2	...	...	...	...	...	...	7	1
Bexley	22,080	...	...	35	...	27	1	...	...	...	...	...	...	2	...
Botany	8,820	1	...	8	...	11	...	...	...	...	...	...	...	...	...
Burwood	20,110	1	...	29	...	14	...	...	...	...	...	1	1	2	1
Canterbury	83,630	1	1	188	...	86	6	1	...	1	1	...	...	5	1
Concord	24,280	1	...	40	...	27	2	1	1	...	...	...	...	1	...
Darlington	2,830	...	...	10	...	23	1	...	...	...	...	...	...	...	...
Drummoyne	30,770	...	...	42	...	24	1	1	...	1	1	...	...	2	1
Dundas	6,610	...	...	9	...	7	...	...	...	...	...	...	...	...	...
Eastwood	3,260	...	...	1	...	2	...	...	...	...	...	...	...	...	...
Enfield..................	15,190	...	...	42	...	18	...	...	...	...	...	...	...	...	...
Ermington and Rydalmere	2,460	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Erskineville	6,330	...	...	12	...	29	1	1	...	...	...	...	...	2	...
Glebe	19,140	...	...	35	...	44	1	1	...	...	...	...	...	7	1
Granville	20,710	...	...	39	...	51	7	...	...	...	...	...	...	1	2
Holroyd (Pitt and Merrylands Wards)	9,120	1	...	34	...	32	...	...	...	...	...	...	...	1	...
Homebush	3,250	1	...	2	...	4	...	...	...	...	...	...	...	1	...
Hunter's Hill	9,640	...	...	9	...	10	...	...	...	...	...	...	...	3	...
Hurstville	25,020	...	...	45	...	22	6	...	...	...	...	...	...	5	1
Kogarah	33,280	1	1	56	...	35	3	...	...	...	...	...	...	2	...
Kuring-gai	32,000	...	...	51	...	8	...	...	...	...	...	...	...	5	...
Lane Cove	16,220	...	...	14	...	10	...	1	...	1	...	...	...	...	...
Leichhardt	30,140	...	1	58	...	105	1	...	...	...	...	1	...	5	...
Lidcombe	17,840	...	...	17	...	25	...	...	...	...	...	...	...	2	...
Manly	25,420	2	...	19	...	22	1	1	1	...	...	...	...	1	...
Marrickville	46,110	1	...	53	...	63	4	...	...	1	...	...	...	6	1
Mascot	15,530	...	...	20	...	19	...	...	...	...	...	...	...	1	1
Mosman	25,030	...	...	18	...	7	1	...	...	...	...	...	...	...	...
Newtown...............	24,650	...	...	30	...	94	6	1	...	...	...	...	...	12	...
North Sydney	51,850	...	...	50	...	27	4	...	...	1	...	...	...	3	1
Paddington	24,140	...	...	26	1	43	2	1	...	...	...	...	...	12	1
Parramatta	19,400	...	...	13	...	12	1	...	...	...	...	...	...	1	1
Petersham	27,500	1	1	38	...	53	1	1	...	...	...	...	...	4	...
Randwick	84,560	1	...	126	...	138	9	1	...	1	...	...	...	6	...
Redfern	17,720	1	...	28	...	55	1	...	...	1	...	...	...	10	1
Rockdale	41,920	...	...	68	...	31	...	...	...	...	...	...	...	6	...
Ryde	30,580	4	1	33	...	35	1	1	...	...	...	...	...	5	...
St. Peters	12,550	...	...	22	...	29	3	...	...	...	...	...	...	2	...
Strathfield	13,030	...	...	23	...	15	...	...	...	...	...	...	...	...	...
Vaucluse	8,020	1	...	17	...	1	...	...	...	...	...	...	...	1	...
Waterloo	11,420	...	...	12	...	40	1	...	...	...	...	...	...	...	...
Waverley	61,550	...	...	90	1	62	3	...	...	...	...	...	...	13	1
Willoughby	45,620	2	...	62	...	29	2	1	...	...	...	...	...	2	...
Woollahra	38,320	3	1	63	...	17	1	...	...	...	...	...	...	5	...
						EXTRA METROPOLITAN MUNICIPALITIES.									
Cabramatta and Canley Vale	7,320	...	...	6	1	14	1	...	...	...	...	...	...	2	...
Fairfield	9,950	...	...	16	...	38	1	...	...	...	...	...	...	...	...
Holroyd (Guildford and Wentworth Wards)	8,870	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ingleburn	2,050	...	...	1	...	2	...	...	...	...	...	...	...	...	...
Liverpool	6,890	...	...	8	...	12	...	...	...	...	...	...	...	2	...
						EXTRA METROPOLITAN SHIRES AND PORT JACKSON.									
Hornsby	24,220	...	...	48	...	25	1	...	...	...	...	...	...	4	1
Warringah	18,000	...	...	8	...	38	...	2	...	1	...	...	...	1	...
Harbour of Port Jackson	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	1,371,330	29	7	1,997	4	2,030	88	17	2	12	3	2	1	197	17

GRAPH No. 3.

CANCER, TUBERCULOSIS, AND HEART DISEASE.

Annual Death Rate per 100,000 of Population in New South Wales, 1875-1939.



To face page 10.

Table II.—Showing the number of notified cases of, and deaths from, Cerebro-spinal Fever (Meningococcal Meningitis), Diphtheria or Membranous Croup, Encephalitis Lethargica, Infantile Paralysis (Acute Anterior Poliomyelitis), Scarlet Fever, Typhoid Fever (including Paratyphoid), and Puerperal Infection in the Hunter River Combined District for the year ended 31st December, 1939.

Municipality or Shire.	Estimated Mean Population.	Typhoid and Paratyphoid.		Scarlet Fever.		Diphtheria.		Infantile Paralysis.		Cerebro-spinal Meningitis.		Encephalitis Lethargica.		Puerperal Infection.	
		C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
Municipalities.															
Greater Newcastle ...	116,350	9	2	299	2	175	2	4	...	...	...	1	...	...	...
Cessnock	14,490	...	...	10	...	31	2	...	...	...	...	...	...	...	...
Maitland, East	4,450	...	...	4	...	6	...	...	...	...	...	...	...	...	...
Maitland, West	8,260	...	...	7	...	17	...	...	...	1	...	...	...	1	...
Morpeth	1,040	...	...	...	...	3	...	...	...	...	...	...	...	...	...
Singleton	3,830	...	...	6	...	5	...	...	...	...	...	...	...	1	...
Shires.															
Bolwarra	3,710	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Kearsley	27,850	1	...	22	...	59	1	...	...	1	...	...	...	...	1
Lake Macquarie	30,740	...	...	56	2	35	...	...	...	1	...	...	...	1	...
Port Stephens	5,320	...	...	...	...	4	...	...	...	...	1	...	...	...	1
Tarro	7,600	...	...	3	...	...	...	...	...	2	...	...	...	...	...
Total	223,640	10	2	407	4	336	5	4	...	5	1	1	...	3	2

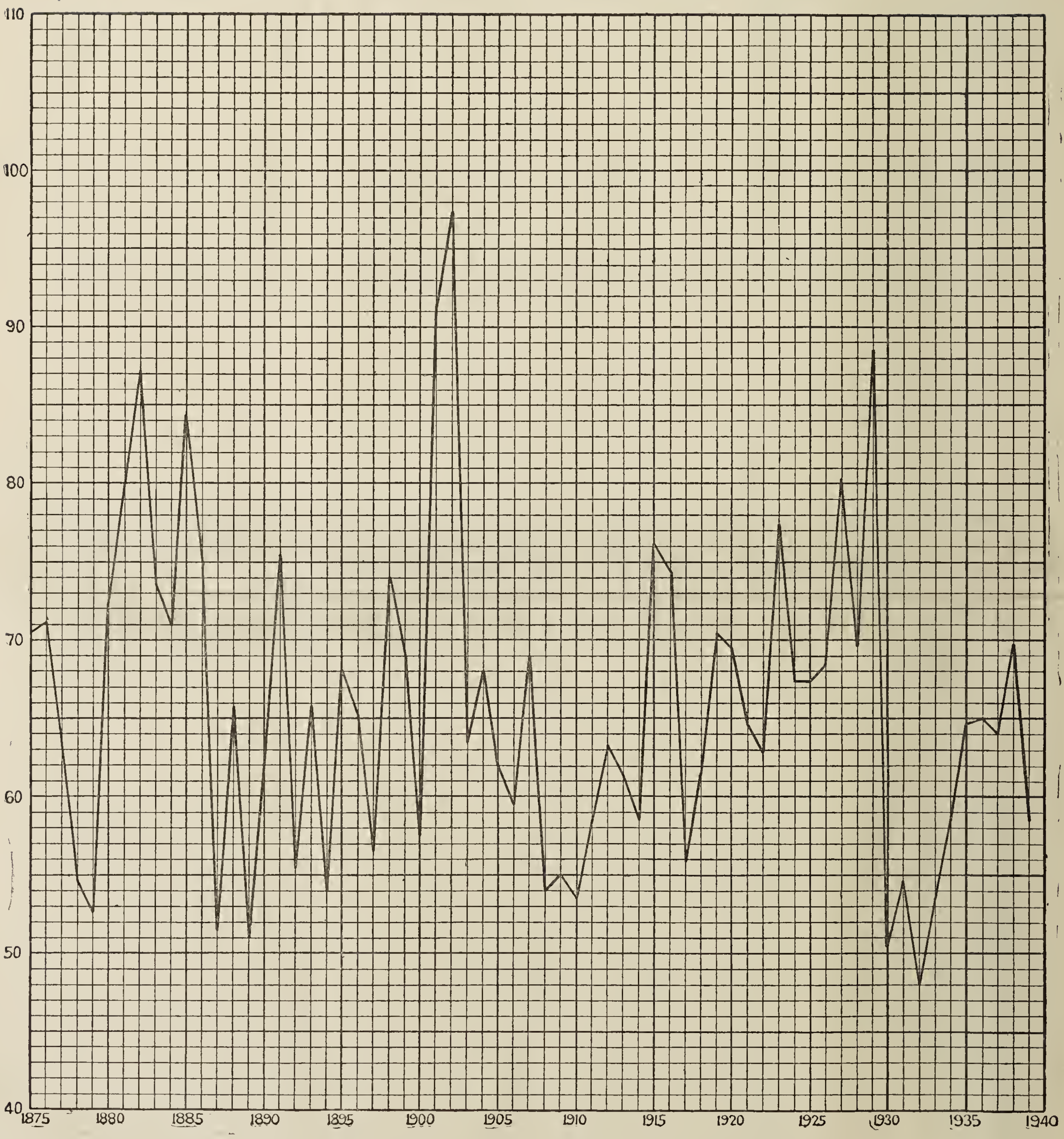
Table III.—Showing the number of notified cases of, and deaths from, Cerebro-spinal Fever (Meningococcal Meningitis), Diphtheria or Membranous Croup, Encephalitis Lethargica, Infantile Paralysis (Acute Anterior Poliomyelitis), Scarlet Fever, Typhoid (including Paratyphoid), and Puerperal Infection in the Remainder of State for the year ended 31st December, 1939.

Municipality.	Estimated Mean Population.	Typhoid and Paratyphoid.		Scarlet Fever.		Diphtheria.		Infantile Paralysis.		Cerebro-spinal Meningitis.		Encephalitis Lethargica.		Puerperal Infection.	
		C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
Municipalities.															
Albury	11,560	...	...	6	...	8	...	...	...	...	...	...	...	...	...
Armidale	7,180	...	...	6	1	2	2	...	...	...	...	...	...	1	1
Ballina	3,200	...	...	...	...	2	...	...	...	...	...	...	...	...	...
Balranald	1,360	...	...	2	...	...	...	...	...	...	...	...	...	...	...
Barraba	1,480	...	...	...	...	5	1	...	...	...	...	...	...	...	...
Bathurst	11,070	...	...	5	...	11	1	...	...	...	...	...	...	...	...
Bega.........................	2,610	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Berry	2,820	...	...	...	...	2	...	...	...	...	...	...	...	1	...
Bingara	1,450	...	...	2	...	32	...	...	...	...	...	...	...	...	...
Blackheath	1,610	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bombala	990	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Bourke......................	1,970	2	1	4	...	7	1	...	...	...	...	...	...	...	...
Bowral	3,150	...	...	6	...	1	1	...	...	...	...	...	...	...	...
Brewarrina	880	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Broken Hill................	28,200	3	...	20	...	147	7	...	...	...	...	...	...	1	...
Broughton Vale	290	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Burrowa	1,590	...	...	...	...	2	...	...	...	...	...	...	...	...	...
Camden	2,590	...	...	...	...	2	...	...	...	...	...	...	...	...	...
Campbelltown	3,040	...	...	8	...	3	...	...	...	...	...	...	...	...	...
Casino	6,140	...	...	1	...	1	...	...	...	...	...	...	...	...	...
Castlereagh	1,210	...	...	...	...	7	...	...	...	...	...	...	...	...	...
Cobar	1,710	...	...	...	...	6	...	...	...	...	...	...	...	...	...
Condobolin	2,850	...	...	...	...	...	...	...	...	...	...	...	...	2	1
Cooma	2,160	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Coonamble	2.910	...	...	...	...	4	...	...	...	...	...	...	...	...	...
Cootamundra	4,890	1	...	5	...	4	...	1	...	...	...	...	...	...	...
Corowa	3,080	...	...	...	...	6	...	...	...	...	...	...	...	...	...
Cowra	5,450	1	...	3	...	14	...	...	...	...	...	...	...	...	...
Deniliquin	3,480	...	...	12	...	1	...	...	...	...	...	...	...	...	...
Dubbo	8,750	...	...	21	...	45	2	...	...	...	...	...	...	1	...

GRAPH No. 4.

PNEUMONIA.

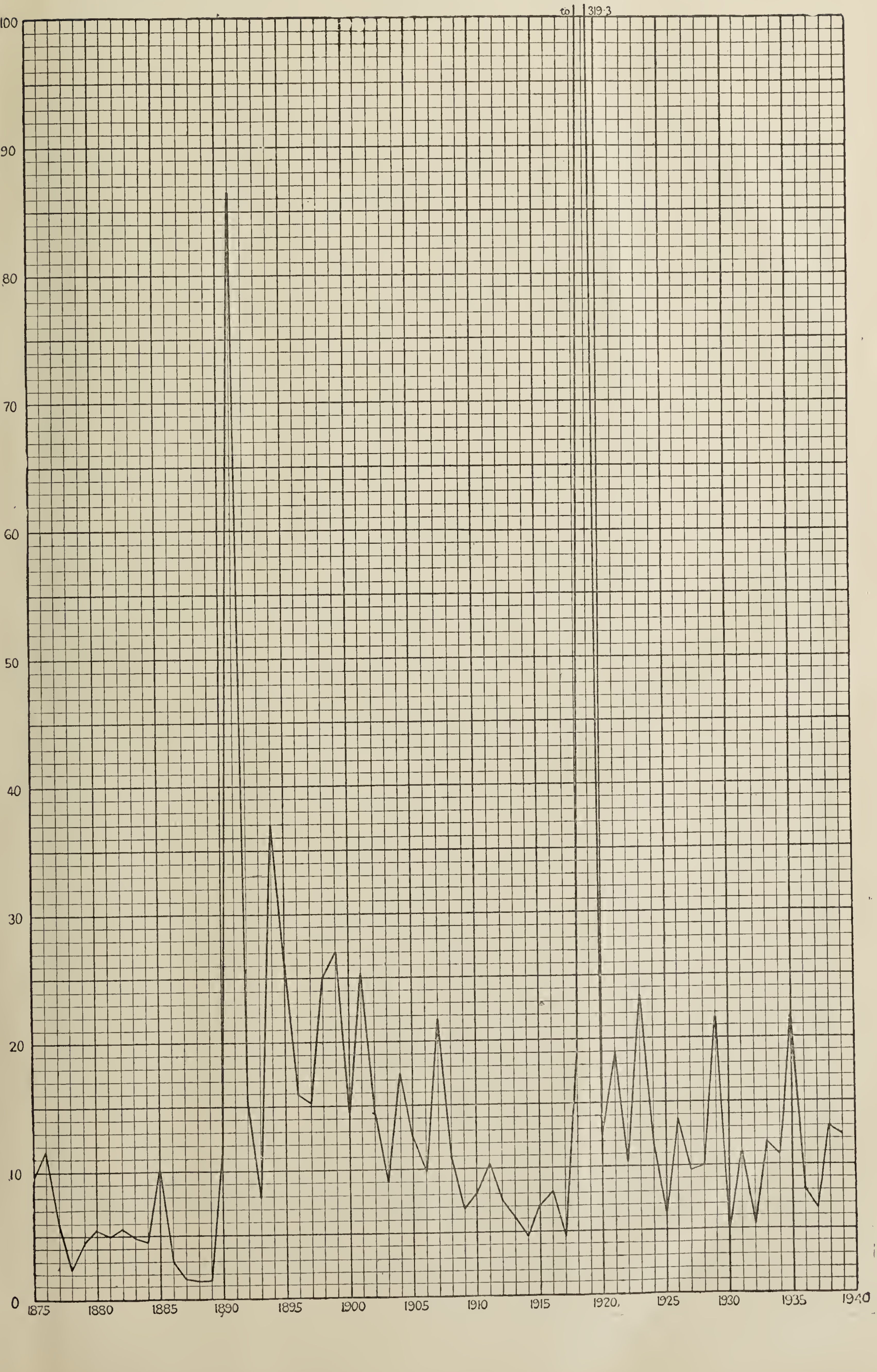
Annual Death Rate per 100,000 of Population in N.S.W., 1875-1939.



GRAPH No. 5.

INFLUENZA.

Annual Death Rate per 100,000 of Population in New South Wales, 1875-1939.



REMAINDER OF STATE.—Return showing the number of Cases, etc., from Country Municipalities—*continued.*

Municipality.	Estimated Mean Population.	Typhoid and Paratyphoid.		Scarlet Fever.		Diphtheria.		Infantile Paralysis.		Cerebro-spinal Meningitis.		Encephalitis Lethargica.		Puerperal Infection.	
		C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
						MUNICIPALITIES—*continued.*									
Dungog	2,200	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Forbes	5,750	...	...	22	...	11	...	...	...	...	...	...	...	...	1
Gerringong	890	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Glen Innes	5,500	...	...	5	...	30	...	...	...	...	...	...	...	...	...
Gosford	3,740	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Goulburn	15,370	1	...	43	...	7	...	...	...	...	...	...	...	...	1
Grafton	7,390	...	...	8	...	3	...	...	...	...	...	...	...	1	1
Grafton, South	2,910	...	...	...	...	5	...	...	...	...	...	...	...	1	...
Grenfell	2,650	...	...	1	...	1	...	...	...	...	...	...	...	...	...
Gulgong	1,820	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gunnedah	4,140	...	...	21	...	13	...	...	...	1	1	...	...	...	...
Hay	3,320	...	...	4	...	1	...	...	...	...	...	...	...	...	...
Hillston	1,180	...	1	8	...	1	...	...	...	...	...	...	...	...	...
Illawarra North	9,030	...	...	1	...	8	1	...	...	...	...	...	...	...	...
Inverell	6,030	...	...	1	...	13	1	...	...	...	...	...	...	1	...
Jamberoo	1,140	...	...	...	...	3	...	...	...	...	...	...	...	...	...
Junee	4,360	...	...	6	...	4	...	...	...	...	...	...	...	...	...
Katoomba	7,020	1	...	5	...	2	1	...	...	...	...	...	...	...	...
Kempsey	5,370	...	...	...	...	7	...	...	...	...	...	...	...	1	...
Kiama	2,510	...	...	1	...	3	...	...	...	...	...	...	...	...	...
Lismore	13,120	...	...	7	...	23	...	...	...	...	...	...	...	1	...
Lithgow	13,850	...	...	3	...	79	6	...	...	...	...	...	...	1	1
Maclean	1,690	...	...	1	...	1	...	...	...	...	...	...	...	2	...
Manilla	1,950	...	...	3	...	14	1	...	...	...	...	...	...	1	...
Mittagong*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Moama	790	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Molong	1,690	...	...	4	...	13	1	...	...	...	...	...	...	...	...
Moree	4,850	1	...	4	...	8	1	...	...	1	...	...	...	...	...
Mudgee	4,170	...	...	4	...	21	1	...	...	...	...	...	...	1	...
Mullumbimby	1,490	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Murrumburrah	2,740	...	...	...	...	3	1	...	...	...	...	...	...	...	...
Murrurundi	1,180	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Murwillumbah	4,560	...	...	1	...	15	...	...	...	...	...	...	...	...	...
Muswellbrook	3,440	...	...	2	...	16	1	...	...	...	...	...	...	...	...
Narrabri	3,330	...	...	2	...	16	2	...	...	...	...	...	...	...	...
Narrandera	4,320	...	...	23	...	9	1	...	...	...	...	...	...	...	...
Narromine	1,730	...	...	...	...	4	...	...	...	...	...	...	...	...	...
Nowra	3,230	...	...	2	...	...	...	...	...	...	...	...	...	...	...
Nyngan	1,680	...	...	18	...	3	...	...	...	...	...	...	...	1	1
Orange	10,350	...	...	21	...	23	1	1	...	...	...	...	...	1	...
Parkes	6,290	3	...	9	...	19	2	...	...	...	...	...	...	1	...
Peak Hill	1,290	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Penrith	4,110	...	...	2	...	23	1	...	...	...	...	...	...	...	...
Picton	1,060	...	...	1	...	2	...	...	...	...	...	...	...	...	...
Port Macquarie	2,040	...	...	1	...	1	...	...	...	...	...	...	...	...	...
Queanbeyan	4,280	...	...	1	...	3	...	...	...	...	...	...	...	...	...
Quirindi	2,720	...	...	1	...	7	1	...	...	...	...	...	...	1	...
Richmond	2,740	...	...	2	...	...	...	...	...	...	...	...	...	...	...
Scone	2,290	...	...	3	...	1	...	...	...	...	...	...	...	...	...
Shellharbour	2,160	...	...	2	...	3	...	...	...	...	...	...	...	...	...
Shoalhaven, South	830	...	...	...	...	...	...	...	...	...	...	...	...	...	...
St. Mary's	3,160	...	...	3	...	16	...	...	...	...	...	...	...	1	...
Tamworth	10,920	...	...	14	1	32	...	...	...	...	...	1	...	1	2
Taree	5,130	...	...	1	...	4	1	...	...	...	...	...	...	...	...
Temora	4,310	...	...	2	...	2	...	...	...	...	...	1	1	1	...
Tenterfield	2,750	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Ulladulla	1,570	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ulmarra	1,980	...	...	3	...	5	...	...	...	...	...	...	...	...	...
Uralla	1,150	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Wagga Wagga	13,020	1	1	11	...	20	...	...	...	1	1	1	1	...	...
Waleha	1,560	...	...	1	...	1	...	...	...	...	...	...	...	...	...
Warren	1,710	...	...	4	...	2	...	...	...	...	...	...	...	...	...
Wellington	4,520	...	...	9	...	20	...	...	...	...	...	...	...	1	...
Wentworth	880	...	...	...	...	1	...	1	...	...	...	...	...	...	...
Wilcannia	680	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Windsor	3,470	...	...	2	...	4	...	...	...	...	...	...	...	1	...
Wingham	1,770	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Wollongong	17,070	...	...	4	...	12	...	...	...	...	...	...	...	...	...
Yass	3,030	...	...	3	...	7	...	...	...	...	...	...	...	...	1
Young	4,340	...	...	4	...	8	...	...	...	...	...	...	...	...	2
Total Municipalities	414,980	14	3	411	2	868	39	3	...	3	2	3	2	27	10

* Amalgamated with Nattai Shire from 1st January, 1939.

REMAINDER OF STATE.—Return showing the number of cases, etc., from Country Shires.

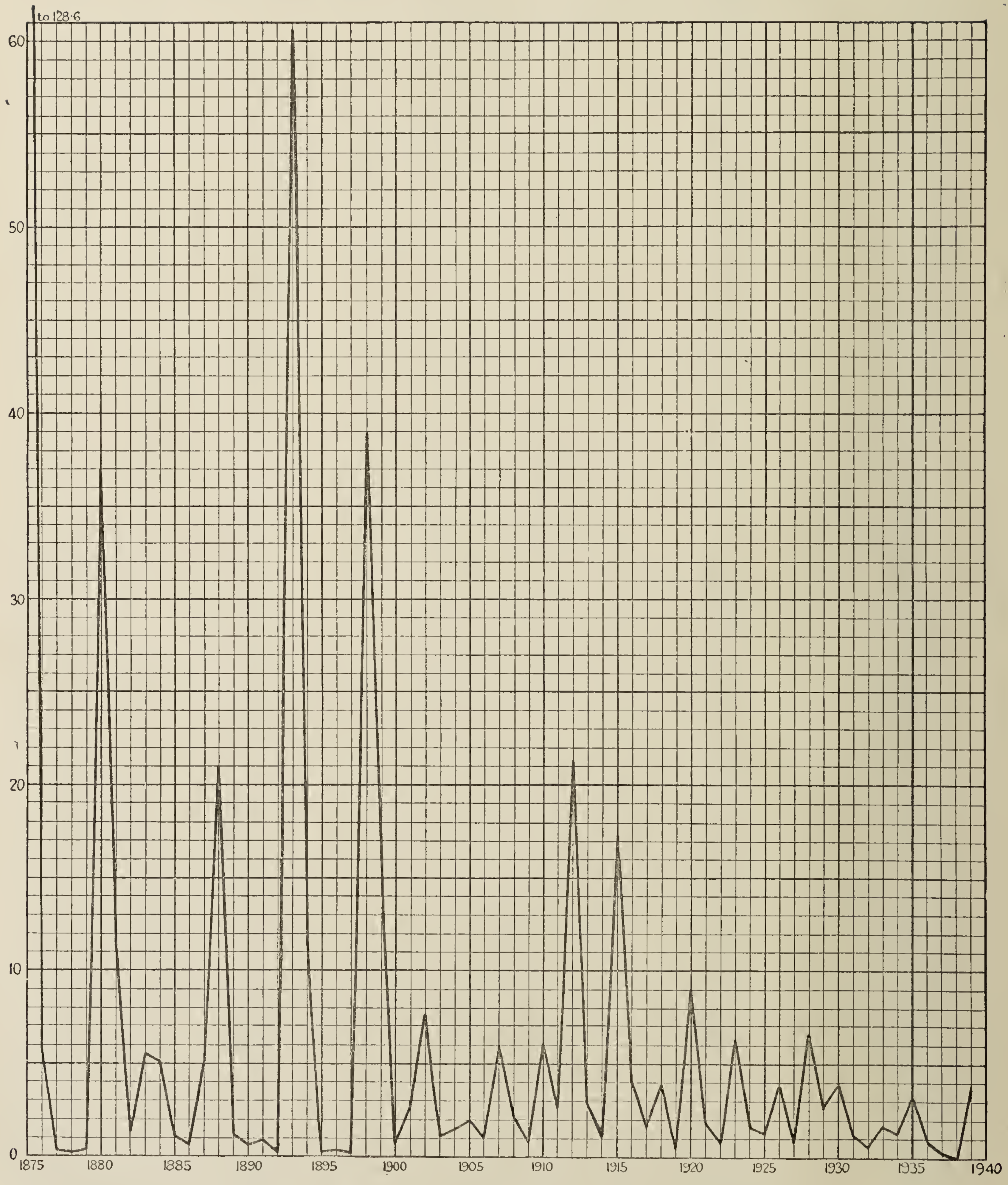
Shires.	Estimated Mean Population.	Typhoid and Paratyphoid.		Scarlet Fever.		Diphtheria.		Infantile Paralysis.		Cerebro-spinal Meningitis.		Encephalitis Lethargica.		Puerperal Infection.	
		C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
								SHIRES.							
Abercrombie	4,110	...	...	1	...	1	1	...	...	...	...	...	...	...	1
Amaroo	2,890	...	...	5	...	3	1	...	...	...	...	...	...	...	...
Apsley	2,980	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Ashford	4,120	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bannockburn	3,480	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Barraba	2,110	...	...	3	...	1	...	...	...	...	...	...	...	...	...
Baulkham Hills	8,600	...	...	10	...	15	...	...	...	...	...	...	...	...	...
Bellingen	6,270	...	...	2	...	2	...	1	...	...	...	...	...	...	...
Berrigan	4,970	...	...	6	...	7	...	...	...	...	...	...	...	...	...
Bibbenluke	2,890	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Blacktown	15,010	...	...	10	...	17	1	...	...	...	...	...	...	1	...
Bland	12,600	...	...	6	...	10	...	...	...	...	...	...	...	...	...
Blaxland	8,380	...	...	3	...	39	2	...	...	...	...	...	...	...	...
Blue Mountains	7,300	...	...	10	...	4	...	...	...	...	...	...	...	...	1
Bogan	1,930	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Boolooroo	3,620	1	...	2	...	2	1	...	...	...	...	...	...	...	...
Boomi	3,270	...	...	1	...	5	...	...	...	...	...	...	...	...	...
Boree	7,040	...	...	6	...	23	2	...	...	...	...	...	...	...	...
Bulli	16,130	...	...	5	...	24	1	...	...	...	...	...	...	...	...
Burrangong	6,100	...	...	12	...	12	1	...	...	...	...	...	...	...	...
Byron	8.120	...	...	2	...	2	...	...	...	...	...	...	...	...	...
Cambewarra	1,260	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Canobolas	9,060	...	...	15	...	14	2	...	...	...	...	...	1	...	...
Carrathool	5,910	...	...	2	...	13	...	...	...	...	...	...	...	...	...
Clyde	1,910	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cobborah	5,430	...	...	10	...	12	...	...	...	...	...	...	...	...	...
Cockburn	5,140	...	...	5	...	6	1	...	...	...	...	...	...	...	...
Colo	5,450	...	...	2	...	2	...	...	...	...	...	...	...	...	...
Conargo	1.250	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Coolah	2.260	...	...	1	...	11	...	...	...	...	...	...	...	...	...
Coolamon	7,260	...	...	4	...	21	1	...	...	...	...	...	...	...	...
Coonabarabran	7,200	...	...	8	...	5	1	...	...	...	...	...	...	1	...
Copmanhurst	3,550	...	...	3	...	5	1	...	...	...	...	...	...	...	...
Coreen	3,510	...	...	1	...	5	...	...	...	...	...	...	...	...	...
Crookwell	6,600	...	...	5	...	...	...	...	...	...	...	...	...	...	...
Cudgegong	5,550	...	...	2	...	13	...	...	...	...	...	...	...	...	...
Culcairn	5,580	...	...	5	...	2	2	...	...	...	...	...	...	...	...
Dalgety*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Demondrille	3,320	...	...	4	...	1	...	...	...	...	...	...	...	...	...
Dorrigo	11,490	...	...	5	...	8	...	...	...	...	...	...	...	...	1
Dumaresq	4,400	...	...	4	...	...	...	...	...	...	...	...	...	...	...
Erina	14,480	...	...	1	...	8	2	...	...	...	...	...	...	2	...
Eurobodalla	5,490	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gilgandra	5,520	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Gloucester	4,570	...	...	2	...	2	1	...	...	...	...	...	...	...	...
Goobang	7,010	...	...	1	...	7	...	...	...	...	...	...	...	...	...
Goodradigbee	3,560	...	...	1	...	1	1	...	...	...	...	...	...	...	...
Gostwyck	4,290	...	...	1	...	2	...	...	...	...	...	...	...	...	...
Gundagai	5,330	...	...	...	...	4	...	...	...	...	...	...	...	2	...
Gundurimba	4,760	...	...	2	...	5	...	...	...	...	...	...	...	...	...
Gunning	3,260	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Guyra	6,730	...	...	6	...	2	...	...	...	...	...	...	...	1	1
Gwydir	1,960	...	...	1	...	8	1	...	...	...	...	...	...	...	...
Harwood	4,570	...	...	1	...	10	1	...	...	...	...	...	...	...	...
Hastings	9,920	...	...	1	...	6	1	...	...	...	...	...	...	...	...
Holbrook	2,750	...	...	1	...	2	1	...	...	...	...	...	...	...	...
Hume	5,330	...	...	2	...	2	...	...	...	...	...	...	...	...	...
Illabo	2,890	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Illawarra, Central	12,380	...	...	1	...	17	...	...	...	...	...	...	...	...	...
Imlay	4,870	...	...	1	...	13	...	...	...	...	...	...	...	...	...
Jemalong	4,620	...	...	3	...	1	...	...	...	...	...	...	...	...	...
Jerilderie	1,860	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Jindalee	2,570	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Kyeamba	4,390	...	...	2	...	19	...	...	...	...	...	...	...	...	...
Kyogle	12,680	1	...	1	...	23	1	...	...	...	...	...	...	1	1
Lachlan	8,430	...	...	...	...	6	...	1	...	...	...	...	...	...	...
Liverpool Plains	5,480	...	...	7	...	7	...	...	...	...	...	...	...	...	...
Lockhart	5,690	...	...	3	...	9	...	...	...	...	...	...	...	...	...
Lyndhurst	7,430	...	...	8	...	22	1	...	...	...	...	...	...	1	...
Macintyre	1,640	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Macleay	9,160	...	...	3	...	8	1	4	...	...	...	...	...	...	1
Macquarie	4,640	...	...	3	...	11	2	...	...	...	...	...	...	...	...
Mandowa	2,020	...	...	...	...	6	...	...	...	...	...	...	...	...	...
Manning	14,660	...	...	4	...	12	2	...	...	...	...	...	...	...	...
Marthaguy	2,200	...	...	...	...	3	...	...	...	...	...	...	...	...	...
Merriwa	3,270	...	...	2	...	1	...	...	...	...	...	...	...	1	...
Mitchell	4,190	...	...	4	...	3	...	...	...	...	...	...	...	...	...
Monaro	2,630	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Mulwaree	7,310	...	...	10	...	7	...	...	...	...	...	...	...	...	...
Mumbulla	4,750	...	...	...	...	34	2	...	...	...	...	...	...	...	...
Murray	3,250	...	...	2	...	...	...	...	...	...	...	...	...	...	...
Murrumbidgee	850	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Murrungal	2,640	...	...	...	...	1	...	...	...	1	...	...	...	...	...
Muswellbrook	4,220	...	...	...	...	9	...	...	...	...	...	...	...	...	...
Nambucca	7,960	...	...	...	...	4	...	...	...	...	...	...	...	1	1

* Known as Snowy River Shire from 16th August, 1939.

GRAPH No. 6.

MEASLES.

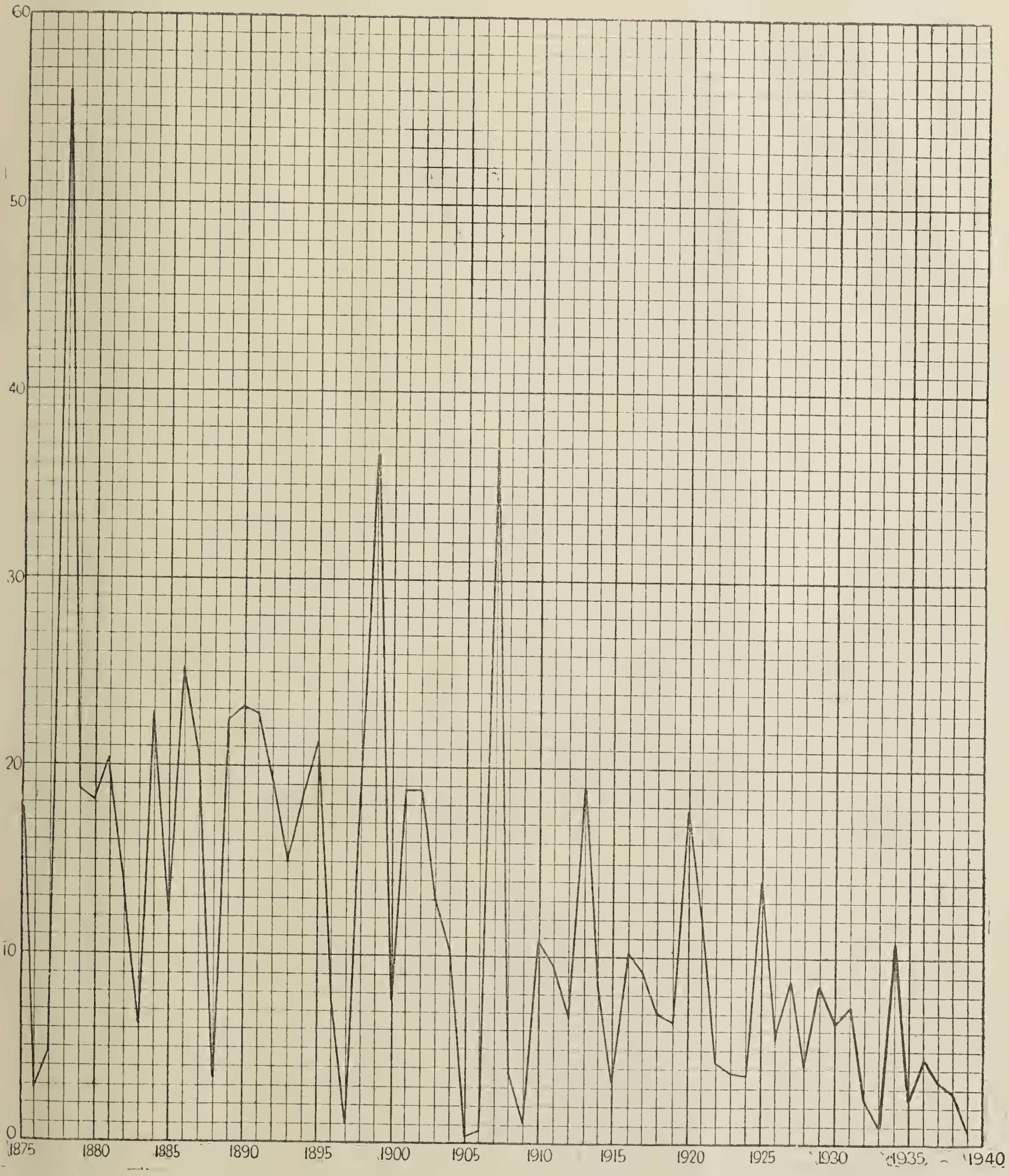
Annual Death Rate per 100,000 of Population in N.S.W., 1875-1939.



GRAPH No. 7.

WHOOPING COUGH.

Annual Death Rate per 100,000 of the Population in New South Wales, 1875-1939.



REMAINDER OF STATE.—Return showing the number of cases, etc., from Country Shires—*continued.*

Shires.	Estimated Mean Population.	Typhoid and Paratyphoid.		Scarlet Fever.		Diphtheria.		Infantile Paralysis.		Cerebro-spinal Meningitis.		Encephalitis Lethargica.		Puerperal Infection.	
		C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
						SHIRES—*continued.*									
Namoi	9,470	...	...	7	...	49	3	...	...	...	...	...	...	...	...
Narraburra	4,350	...	...	...	...	4	...	...	...	...	...	...	...	...	...
Nattai	5,680	...	...	2	...	6	...	...	...	...	...	...	...	...	...
Nepean	3,700	...	...	1	...	7	...	...	...	...	...	...	...	1	...
Nundle	1,870	1	...	...	...	1	1	...	...	...	...	...	...	...	...
Nymboida	2,950	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Oberon	3,130	...	...	1	...	1	...	1	...	...	...	...	...	...	...
Orara	1,730	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Patrick Plains	6,660	...	...	7	...	4	...	...	...	...	...	...	...	...	...
Peel	6,740	...	...	4	...	31	...	...	...	...	...	...	...	...	...
Rylstone	5,970	...	...	3	...	10	2	...	...	...	...	...	...	...	...
Severn	6,360	...	...	1	...	4	...	...	...	...	...	...	...	...	1
Snowy River	3,630	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Stroud	6,720	...	...	...	...	7	...	...	...	...	...	...	...	1	1
Sutherland	15,800	...	...	30	...	19	1	...	...	...	...	...	...	2	...
Talbragar	4,080	...	...	7	...	10	4	...	...	...	...	...	...	...	...
Tallaganda	3,210	...	...	...	...	10	1	...	...	...	...	...	...	...	...
Tamarang	3,090	...	...	2	...	3	...	...	...	...	...	...	...	...	...
Tenterfield	5,470	...	...	2	...	3	...	...	...	...	...	...	...	...	...
Terania	7,900	...	...	1	...	14	...	...	...	...	...	...	...	...	...
Timbrebongie	4,460	...	...	3	...	5	2	...	...	...	...	...	...	...	...
Tintenbar	5,410	...	...	...	...	8	...	...	...	...	...	...	...	...	...
Tomki	4,100	...	...	...	...	2	...	...	...	...	...	...	...	...	...
Tumbarumba	3,080	...	...	...	...	2	...	...	...	...	...	...	...	...	...
Tumut	8,030	...	...	1	...	2	...	...	...	...	...	...	...	...	...
Turon	4,570	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Tweed	14,190	...	...	4	...	7	...	...	...	...	...	...	...	...	...
Upper Hunter	5,910	...	...	6	...	15	...	...	...	...	...	...	...	...	...
Urana	3,290	...	...	2	...	...	...	...	...	...	...	...	...	...	...
Wade	9,970	...	...	8	...	7	...	...	...	...	...	...	...	...	...
Wakool	4,470	2	...	1	...	...	...	...	...	...	...	...	...	...	...
Walgett	3,850	...	...	4	...	4	2	...	...	...	...	...	...	...	...
Wallarobba	5,210	...	...	3	...	5	1	...	...	...	...	...	...	...	...
Waradgery	1,250	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Warrah	1,840	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Waugoola	6,070	...	...	2	...	12	...	...	...	...	...	...	...	...	...
Weddin	4,060	...	...	1	...	3	...	...	...	...	...	...	...	...	...
Willimbong	8,630	...	...	6	...	7	1	1	...	...	...	...	...	...	...
Windouran	820	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wingadee	3,590	...	...	3	...	2	1	...	...	...	...	...	...	...	...
Wingecarribee	6,970	4	...	4	...	3	...	...	...	...	...	...	...	...	...
Wollondilly	6,600	...	...	...	...	2	1	...	...	...	...	...	...	...	...
Woodburn	4,550	...	...	...	...	13	...	...	...	...	...	...	...	...	...
Woy Woy	2,780	...	...	...	...	3	...	...	...	...	...	...	...	1	...
Wyaldra	2,420	...	...	1	...	4	...	...	...	1	...	...	...	...	...
Yallaroi	4,560	...	...	3	...	2	1	...	...	...	...	...	...	...	...
Yanko	5,400	...	...	7	...	4	2	...	...	...	...	...	...	...	...
Yarrowlumla	3,340	...	...	1	1	4	2	...	...	...	...	...	...	...	...
Total, Shires	714,190	10	...	368	1	868	60	8	...	2	...	...	1	14	9
				WESTERN DIVISION (UNINCORPORATED) POLICE DISTRICTS.*											
Balranald	......	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bourke	......	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Brewarrina	......	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Broken Hill	......	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cobar	......	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Hay	......	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hillston	......	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ivanhoe	......	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Menindie	......	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Mitchell	......	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Nyngan	......	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Walgett	......	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Wentworth	......	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Wilcannia	......	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total, Unincorporated	19,360	...	1	3	...	...	...	1	...	...	...	...	...	2	...
						MISCELLANEOUS.									
Lord Howe Island	168	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Migratory	5,466	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Outside the State—															
Australian Capital Territory	......	...	...	4	...	...	...	...	...	...	...	...	...	...	...
Queensland	......	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Victoria	......	...	...	...	...	...	...	...	...	...	...	...	...	...	...
South Australia	......	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total Miscellaneous	......	...	...	4	...	1	...	...	...	...	...	...	...	...	...
Total, N.S.W.	2,749,134	63	13	3,190	11	4,103	192	33	2	22	6	6	4	243	38

* Population and Deaths available only for unincorporated area as a whole.

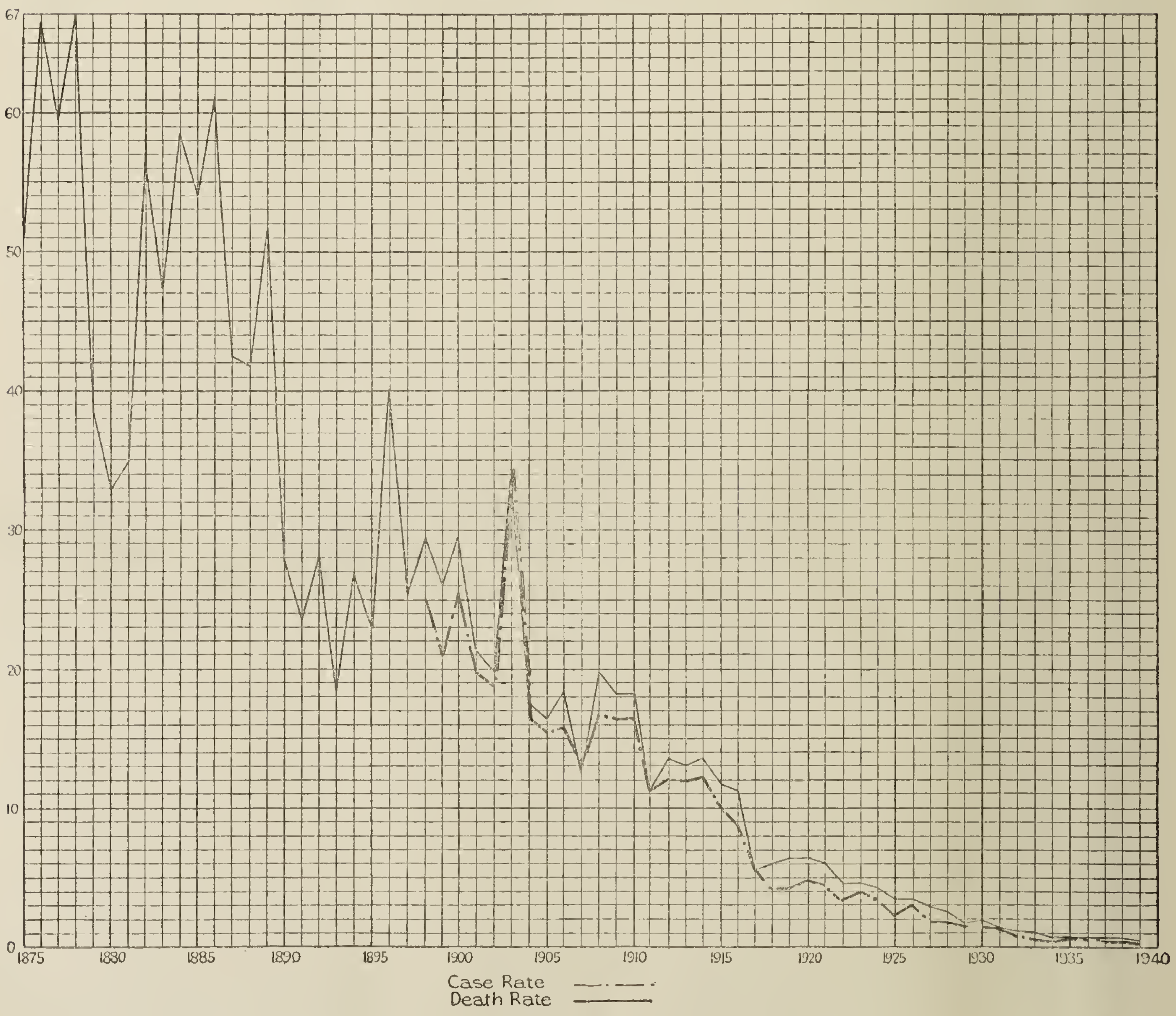
TABLE IV.—Table showing Age and Sex Incidence, and Mortality, in the Metropolitan Combined District, Hunter River Combined District, Broken Hill District, and Remainder of State, from the notified cases of Cerebro-spinal Fever (Meningococcal Meningitis), Diphtheria and Membranous Croup, Infantile Paralysis (Acute Anterior Poliomyelitis), Encephalitis Lethargica, Scarlet Fever, Typhoid Fever (including Paratyphoid) and Puerperal Infection, for the year ended 31st December, 1939.

Age Period.	Typhoid and Paratyphoid.						Scarlet Fever.						Diphtheria.						Infantile Paralysis.						Encephalitis. Lethargica.						Cerebro-spinal Meningitis.						Puerperal Infection.	
	Incidence.			Mortality.			Incidence.			Mortality.			Incidence.			Mortality.			Incidence.			Mortality.			Incidence.			Mortality.			Incidence.			Mortality.			Incidence.	Mortality.
	Notified Cases.			Notified Deaths.			Notified Cases.			Notified Deaths.			Notified Cases.			Notified Deaths.			Notified Cases.			Notified Deaths.			Notified Cases.			Notified. Deaths.			Notified Cases.			Notified Deaths.			Notified Cases.	Notified Deaths.
	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	F.	F.
METROPOLITAN COMBINED DISTRICT.																																						
All ages	15	14	29	5	2	7	761	1236	1,997	2	2	4	978	1,052	2,030	42	46	88	8	9	17	1	1	2	1	1	2	...	1	1	8	4	12	1	2	3	197	17
Under 1 year...	...	...	...	...	...	...	7	7	14	...	1	1	32	16	48	1	3	4	2	...	2	...	...	...	...	...	...	...	...	...	3	2	5	1	1	2	...	...
1– 4 years ...	...	...	...	...	...	...	186	186	372	2	...	2	411	335	746	24	32	56	1	1	2	...	...	...	...	...	...	...	...	...	2	1	3	...	...	...	...	...
5–14 ,, ...	1	...	1	...	...	...	449	713	1,162	...	1	1	437	460	897	17	11	28	2	2	4	1	1	2	...	...	...	...	...	...	2	...	2	...	1	1	...	...
15–24 ,, ...	5	2	7	3	1	4	49	141	190	...	...	...	48	118	166	...	...	...	2	2	4	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	73	3
25–34 ,, ...	4	2	6	1	...	1	32	116	148	...	...	...	32	73	105	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	89	11
35–44 ,, ...	1	4	5	...	...	...	28	49	77	...	...	...	10	30	40	...	...	...	...	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	32	3
45–54 ,, ...	2	1	3	1	...	1	7	16	23	...	...	...	6	13	19	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...
55–64 ,, ...	2	3	5	...	...	...	2	6	8	...	...	...	...	5	5	...	...	...	...	...	...	...	...	...	...	1	1	...	1	1	...	...	...	...	...	...	...	...
65 and over ...	...	2	2	...	1	1	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Not stated	...	...	...	...	...	...	1	1	2	...	...	...	2	2	4	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...
HUNTER RIVER COMBINED DISTRICT.																																						
All ages	4	6	10	1	1	2	141	266	407	1	3	4	140	196	336	3	2	5	3	1	4	...	...	...	1	...	1	...	...	...	2	3	5	1	...	1	3	2
Under 1 year...	...	...	...	...	...	...	1	...	1	1	...	1	3	2	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1– 4 years ...	...	...	...	...	...	...	44	46	90	...	...	...	73	66	139	3	2	5	...	1	1	...	...	...	...	...	...	...	...	...	1	1	2	...	...	...	...	...
5–14 ,, ...	...	...	...	...	...	...	79	161	240	...	2	2	47	77	124	...	...	...	2	...	2	...	...	...	1	...	1	...	...	...	...	2	2	...	...	...	...	...
15–24 ,, ...	...	4	4	...	...	...	7	24	31	...	...	...	9	19	28	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...
25–34 ,, ...	2	...	2	...	...	...	4	22	26	...	...	...	6	18	24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1	...	1	1	...
35–44 ,, ...	...	1	1	...	1	1	5	6	11	...	...	...	2	9	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
45–54 ,, ...	1	1	2	1	...	1	...	1	1	...	...	...	...	4	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
55–64 ,, ...	...	...	...	...	...	...	...	2	2	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
65 and over ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Not stated ...	1	...	1	...	...	...	1	4	5	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
BROKEN HILL DISTRICT.																																						
All ages	2	1	3	...	...	...	9	11	20	...	...	...	68	79	147	5	2	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Under 1 year...	...	...	...	...	...	...	...	...	...	...	...	...	4	4	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1– 4 years ...	...	...	...	...	...	...	1	2	3	...	...	...	32	20	52	5	2	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5–14 ,, ...	1	1	2	...	...	...	2	8	10	...	...	...	27	39	66	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15–24 ,, ...	...	...	...	...	...	...	3	1	4	...	...	...	2	8	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
25–34 ,, ...	...	...	...	...	...	...	2	...	2	...	...	...	2	3	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
35–44 ,, ...	...	...	...	...	...	...	1	...	1	...	...	...	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
45–54 ,, ...	1	...	1	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
55–64 ,, ...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
65 and over ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Not stated ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
REMAINDER OF STATE.																																						
All ages	12	9	21	4	...	4	275	491	766	...	3	3	726	864	1,590	47	45	92	7	5	12	...	...	...	3	...	3	2	1	3	4	1	5	2	...	2	44	19
Under 1 year...	...	...	...	...	...	...	4	81	85	...	...	...	17	18	35	3	7	10	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	2	...	2	...	...
1– 4 years ...	1	1	2	1	...	1	71	278	349	...	1	1	314	271	585	31	20	51	3	2	5	...	...	...	...	...	...	...	...	...	2	...	2	...	...	...	...	...
5–14 ,, ...	1	2	3	...	...	...	159	58	217	...	1	1	289	349	638	12	13	25	4	3	7	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...
15–24 ,, ...	5	3	8	1	...	1	19	38	57	...	...	...	42	107	149	...	4	4	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	11	2
25–34 ,, ...	1	2	3	...	...	...	13	11	24	...	...	...	35	58	93	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	20	9
35–44 ,, ...	1	...	1	1	...	1	7	9	16	...	...	...	13	33	46	...	...	...	...	...	...	...	...	...	1	...	1	1	...	1	...	...	...	...	...	...	10	8
45–54 ,, ...	1	...	1	1	...	1	2	3	5	...	...	...	1	12	13	...	...	...	...	...	...	...	...	...	1	...	1	1	1	2	...	...	...	...	...	...	...	...
55–64 ,, ...	1	1	2	...	...	...	...	3	3	...	1	1	3	4	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
65 and over ...	1	...	1	...	...	...	...	1	1	...	...	...	1	1	2	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Not stated ...	...	...	...	...	...	...	...	9	9	...	...	...	11	11	22	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...

GRAPH No. 8.

TYPHOID FEVER.

Annual Death Rate, per 100,000 of Population in New South Wales, 1875-1939.
,, Case ,, ,, 10,000 ,, ,, ,, ,, ,, ,, 1898-1939.



GRAPH No. 9.

SCARLET FEVER.

Annual Death Rate per 100,000 of the Population in New South Wales, 1875-1939.
,, Case ,, ,, 10,000 ,, ,, ,, ,, ,, ,, ,, 1898-1939.

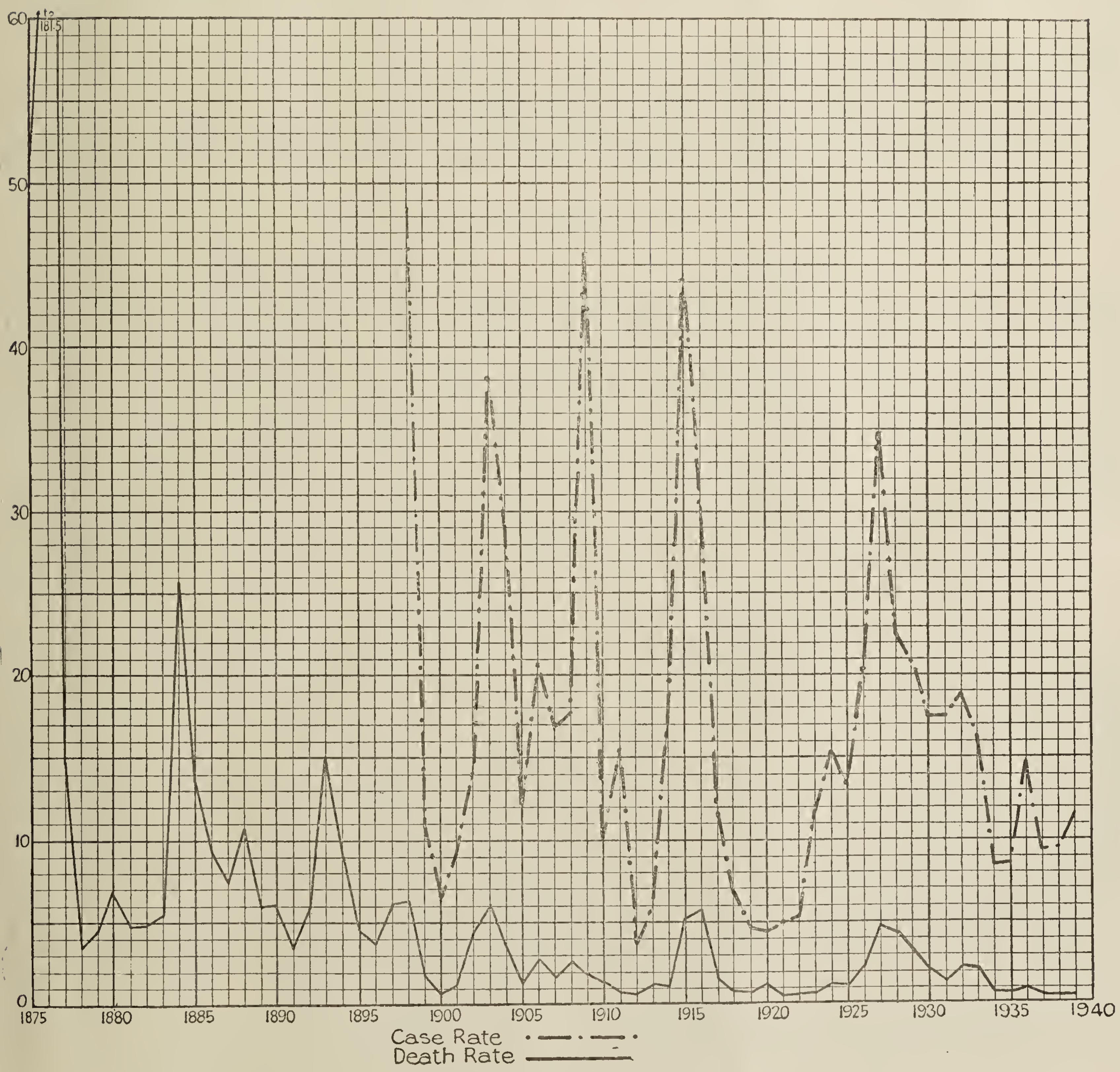


TABLE V.—Showing the seasonal prevalence of Cerebro-spinal Fever (Meningococcal Meningitis), Diphtheria, and Membranous Croup, Infantile Paralysis (Acute Anterior Poliomyelitis), Encephalitis Lethargica, Scarlet Fever, Typhoid Fever (including Paratyphoid), and Puerperal Infection in New South Wales for the year ended 31st December, 1939.

Month—	Metropolitan Combined Districts.		Hunter River Combined Districts.		Broken Hill District.		Remainder of State.		Total.		Metropolitan Combined Districts.		Hunter River Combined Districts.		Broken Hill District.		Remainder of State.		Total.	
	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.	C.	D.
	Typhoid and Paratyphoid Fever.										Scarlet Fever.									
January......	4	...	1	...	...	...	7	1	12	1	110	1	14	...	2	...	59	...	185	1
February ...	2	2	2	1	...	...	3	...	7	3	143	...	17	...	3	...	64	1	227	1
March	5	1	2	1	...	...	4	...	11	2	148	...	9	...	3	...	67	1	227	1
April	7	1	2	...	...	...	2	...	11	1	137	...	22	...	3	...	63	...	225	...
May	5	...	...	...	1	...	3	1	9	1	166	...	42	1	...	...	115	...	323	1
June	1	1	...	...	1	...	...	...	2	1	121	1	36	...	6	...	90	...	253	1
July	...	...	...	...	...	...	...	...	...	...	168	...	49	...	2	...	68	1	287	1
August	...	...	...	...	...	...	...	...	...	...	198	1	34	1	...	...	56	...	288	2
September...	2	1	...	...	...	...	...	...	2	1	217	...	49	...	1	...	46	...	313	...
October ...	1	...	1	...	...	...	...	...	2	...	216	1	56	2	...	...	51	...	323	3
November	1	1	1	...	1	...	1	1	4	2	190	...	43	...	...	...	35	...	268	...
December ...	1	...	1	...	...	...	1	1	3	1	183	...	36	...	...	...	52	...	271	...
Total ...	29	7	10	2	3	...	21	4	63	13	1,997	4	407	4	20	...	766	3	3,190	11
	Diphtheria.										Infantile Paralysis.									
January......	175	5	47	1	5	1	201	6	428	13	2	...	...	...	...	...	1	...	3	...
February ...	159	8	38	2	3	...	147	8	347	18	1	1	3	...	...	...	2	...	6	1
March	235	3	28	...	9	...	161	13	433	16	1	...	...	...	...	...	2	...	3	...
April	195	6	35	1	3	...	155	9	388	16	...	1	...	...	...	...	2	...	2	1
May	269	7	49	...	24	1	268	13	610	21	1	...	...	...	...	...	...	...	1	...
June	228	10	32	...	16	2	184	12	460	24	6	...	...	...	...	...	1	...	7	...
July	164	13	22	...	42	3	147	8	375	24	1	...	...	...	...	...	2	...	3	...
August	154	12	15	...	27	...	84	5	280	17	1	...	...	...	...	...	...	...	1	...
September...	104	6	18	...	6	...	54	4	182	10	...	...	1	...	...	...	...	...	1	...
October ...	152	7	19	1	6	...	58	7	235	15	2	...	...	...	...	...	1	...	3	...
November	107	6	15	...	4	...	45	4	171	10	...	...	...	...	...	...	1	...	1	...
December ...	88	5	18	...	2	...	86	3	194	8	2	...	...	...	...	...	...	...	2	...
Total ...	2,030	88	336	5	147	7	1,590	92	4,103	192	17	2	4	...	...	...	12	...	33	2
	Cerebro-spinal Meningitis.										Encephalitis Lethargica.									
January......	2	...	1	...	...	...	1	...	4	...	...	...	...	...	...	...	...	1	...	1
February ...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	1	1	1	1
March	2	1	...	...	...	...	...	...	2	1	...	...	...	...	...	...	...	...	...	...
April	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
May	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
June	2	...	1	...	...	...	...	...	3	...	1	...	...	...	...	...	...	...	1	...
July	1	...	...	...	...	...	2	1	3	1	...	1	1	...	...	...	...	...	1	1
August	2	...	2	1	...	...	2	1	6	2	1	...	...	...	...	...	...	...	1	...
September...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
October ...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
November	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...
December ...	2	1	...	...	...	...	...	...	2	1	...	...	...	...	...	...	1	...	1	...
Total ...	12	3	5	1	...	...	5	2	22	6	2	1	1	...	...	...	3	3	6	4

SUMMARY.

District.	Typhoid Fever.		Scarlet Fever.		Diphtheria.		Infantile Paralysis.		Cerebro-spinal Meningitis.		Encephalitis Lethargica.		Puerperal Infection.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	†† Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Metropolitan Combined Sanitary District	29	7	1,997	4	2,030	88	17	2	12	3	2	1	197	17
Hunter River Combined District	10	2	407	4	336	5	4	...	5	1	1	...	3	2
Broken Hill District	3	...	20	...	147	7	...	...	...	...	...	...	...	...
Remainder of State—														
Municipalities	11	3	391	2	721	32	3	...	3	2	3	2	27	10
Shires	10	...	368	1	868	60	8	...	2	...	...	1	14	9
Unincorporated	...	1	3	...	...	...	1	...	...	...	...	...	2	...
Lord Howe Island	...	...	...	...	1	...	...	...	...	...	...	...	...	...
A.C.T.	...	...	4	...	...	...	...	...	...	...	...	...	...	...
Total	63	13	3,190	11	4,103	192	33	2	22	6	6	4	243	38

TABLE VI.—Showing the number of Cases of Infectious Diseases notified in the State of New South Wales during the years 1898 to 1939, inclusive, and the number of deaths therefrom.

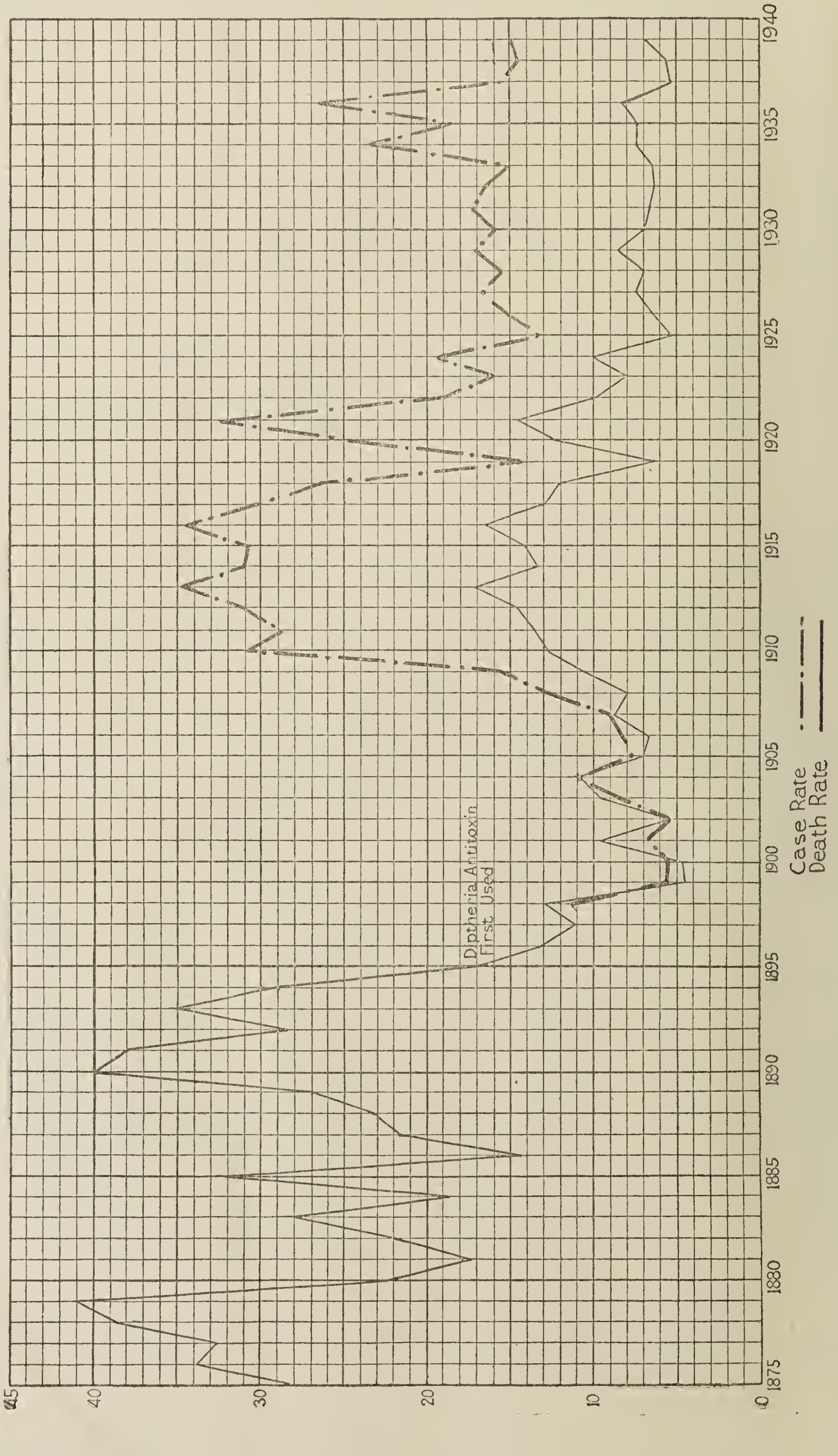
Year.	Mean Population.	Typhoid Fever.*		Scarlet Fever.*		Diphtheria.*		Plague.†		Infantile Paralysis.‡		Cerebro-spinal Meningitis.§		Encephalitis Lethargica.‖		Pulmonary Tuberculosis.¶		Puerperal Infection.**	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths
1898	1,312,455	3,302	387	6,342	83	1,493	169	...	...	...	...	...	...	...	...	...	...	...	...
1899	1,333,605	2,783	347	1,389	25	741	60	...	...	...	...	...	...	...	...	...	...	...	...
1900	1,354,335	3,442	398	895	9	726	63	303	103	...	...	...	...	...	...	...	...	...	...
1901	1,366,900	2,702	291	1,288	16	922	131	...	...	...	...	...	...	...	...	...	...	...	...
1902	1,388,400	2,624	276	2,010	61	757	74	140	41	...	...	...	...	...	...	...	...	...	...
1903	1,407,400	4,855	475	5,358	87	1,214	134	2	...	...	...	...	...	...	...	...	...	...	...
1904	1,428,700	2,370	249	4,056	50	1,584	156	12	6	...	...	...	...	...	...	146	...	...	...
1905	1,454,800	2,226	239	1,773	21	1,118	102	56	21	...	...	...	...	...	...	128	...	...	...
1906	1,484,600	2,373	271	3,085	42	1,219	100	20	8	...	...	...	...	...	...	118	...	...	...
1907	1,517,900	1,972	189	2,570	26	1,376	133	51	20	...	...	...	...	...	...	161	...	...	...
1908	1,545,700	2,607	307	2,755	40	2,001	123	6	3	...	...	...	...	...	...	112	...	...	...
1909	1,577,200	2,615	287	7,178	30	2,419	166	24	7	...	...	...	...	...	...	196	...	...	...
1910	1,616,200	2,714	294	1,642	23	4,989	207	...	...	...	...	...	...	...	...	184	...	...	...
1911	1,665,265	1,864	184	2,618	11	4,784	226	...	...	...	...	...	...	...	...	222	...	...	...
1912	1,743,958	2,126	236	662	11	5,440	253	...	...	...	...	...	...	...	...	265	...	...	...
1913	1,820,066	2,187	236	1,120	23	6,380	310	...	...	47	10	...	...	...	...	228	...	...	...
1914	1,870,460	2,284	250	3,207	21	5,831	247	...	...	79	14	...	...	...	...	293	...	...	...
1915	1,891,191	1,941	219	8,335	97	5,838	264	...	...	63	11	50	33	...	...	361	86	...	...
1916	1,893,479	1,742	209	5,759	107	6,588	309	...	...	311	21	309	145	...	...	1,499	666	...	...
1917	1,905,194	1,091	103	2,255	27	5,805	247	...	...	16	12	197	98	...	...	1,319	584	...	...
1918	1,943,356	810	112	1,308	15	5,151	221	...	...	50	12	120	80	...	...	1,308	586	...	...
1919	2,000,573	857	106	959	10	2,826	114	...	...	8	3	28	23	...	...	1,102	678	...	...
1920	2,068,585	1,016	132	937	24	5,043	263	...	...	45	10	34	27	...	...	1,509	674	...	...
1921	2,108,485	949	129	1,060	8	6,854	306	2	1	184	22	30	28	...	...	1,240	791	...	...
1922	2,155,522	706	99	1,153	11	4,094	207	33	9	33	5	21	22	...	...	1,045	517	...	...
1923	2,201,531	873	104	2,623	13	3,480	176	1	1	104	8	27	22	...	...	1,218	657	...	...
1924	2,244,403	768	97	3,421	29	4,364	222	...	...	108	6	29	38	...	...	1,096	730	...	...
1925	2,295,516	533	80	3,043	27	3,004	118	...	...	57	14	37	27	...	...	1,195	617	...	...
1926	2,346,903	698	80	4,755	53	3,579	147	...	...	81	21	32	23	...	...	1,265	705	...	...
1927	2,403,881	460	68	8,369	113	4,059	179	...	...	25	4	25	10	3	27	1,158	632	...	...
1928	2,460,410	453	60	5,531	105	3,835	168	...	...	30	2	31	8	18	23	1,212	815	...	...
1929	2,503,026	438	45	5,219	78	4,274	215	...	...	241	29	28	10	26	30	1,215	1,151	44	79
1930	2,532,289	380	48	4,400	54	4,051	176	...	...	30	6	43	12	14	20	1,917	1,022	269	82
1931	2,555,871	340	35	4,477	36	4,432	168	...	...	103	10	30	9	20	16	1,588	1,014	319	83
1932	2,579,741	233	31	4,905	57	4,310	160	...	...	384	44	43	7	12	18	1,485	969	292	59
1933	2,601,782	188	28	4,259	55	3,912	169	...	...	13	4	24	5	11	15	1,441	951	222	100
1934	2,623,560	141	19	2,166	19	6,167	193	...	...	94	13	29	7	6	15	1,509	955	238	63
1935	2,645,575	173	20	2,250	18	4,913	194	...	...	181	20	29	5	7	16	1,571	939	266	72
1936	2,667,839	132	19	3,939	26	7,064	220	...	...	23	6	11	4	7	5	1,372	955	326	82
1937	2,694,679	118	18	2,493	17	4,244	143	...	...	70	††5	17	7	9	††4	1,771	991	241	52
1938	2,721,196	91	20	2,599	12	3,935	156	...	...	658	††19	22	7	11	††10	1,797	946	259	47
1939	2,749,134	63	13	3,190	11	4,103	192	...	...	33	††2	22	6	6	††4	1,687	922	243	38

* Notifiable from 1st January, 1898.
† " 23rd January, 1900.
‡ " 1st February, 1912. Proclamation re-issued 14th August, 1931.
§ " 1st April, 1926.
‖ " 11th October, 1915.
¶ " 1904, city of Sydney only; from 1915, Metropolitan and Hunter River Districts; from 1916, Blue Mountain Districts. Notification extended to whole State, March, 1929.
** " 16th August, 1929.
†† Deaths from notifiable forms only.

GRAPH No. 10.

DIPHTHERIA.

Annual Death Rate, per 100,000 of Population in New South Wales, 1875-1939.
,, Case ,, ,, 100,000 ,, ,, ,, ,, ,, ,, 1898-1939.



DIVISION OF SOCIAL HYGIENE.

REPORT OF THE DIRECTOR, DIVISION OF SOCIAL HYGIENE (J. COOPER BOOTH, M.B., CH.B.) TO THE COMMISSIONER UNDER THE VENEREAL DISEASES ACT, 1918 (E. SYDNEY MORRIS, M.D., CH.M., D.P.H., DIRECTOR-GENERAL OF PUBLIC HEALTH) FOR THE YEAR ENDING 31ST DECEMBER, 1939.

Staff.

Director, J. COOPER BOOTH, M.B., Ch.B.; Medical Officer (Senior), J. H. ABBOTT, M.B., Ch.M.; Medical Officers, S. H. HANKINS, M.B., Ch.M., A. J. GEOFFROY, M.B., Ch.M.; Clerical, L. MAHER and four assistants; Senior Clinic Assistant, R. C. LEWRY with Clinic Assistant and five attendants.

The notifications of venereal disease received during the year 1939 totalled 5,851—a decrease of 345 on those of the previous year. It is not improbable that the uncontrolled sale of sulphanilamide has contributed in an appreciable degree to this decline. This drug is obtainable without the prescription of a medical practitioner, and so long as this is so there is danger of an increasing number of persons treating themselves for gonococcal infection without the necessary medical supervision. This is undesirable, for in self treatment there is danger not only of an unsuspected "carrier" condition existing for some time after apparent cure, but also of undetected syphilis. In the routine examination of our clinic patients in the Division during the year we discovered that 1·6 per cent. of those suffering from gonorrhoea were also infected with syphilis.

There has been an increase in the amount of primary syphilis diagnosed during the year and 34·2 per cent. of the notifications of syphilis received during 1939 are for this stage of infection. In 1938 the percentage was 17·5 primary infections in the total notifications of syphilis. At the Divisional Clinic we diagnosed 176 primary syphilitic infections in 6,164 persons who attended for medical examination during 1939. This gave an incidence of 28·5 per thousand for this clinic group as compared with 12 per thousand in 1938 and 2·6 per thousand in 1937.

Eighty-five primary syphilitic infections were notified by private practitioners during 1939 (as compared with 36 during 1938) and 327 by public hospitals and clinics (as compared with 129 during 1938).

We have had very little success in tracing sources of syphilitic infection. Some have been brought under treatment, but the vast majority remain undiscovered and presumably go on spreading infection. The female appears to be as promiscuous as the male and the intimate sex experiences are so multiple and varied and frequent, that it is usually impossible to suggest a probable source of infection.

During the year, 2,680 men made use of the prophylactic facilities at the Divisional Clinic. This is an increase of 305 over the previous year.

In spite of the knowledge that prophylactic facilities were available, 698 former patients re-attended with fresh infections, 68 (9·7 per cent.) of these being syphilitic. Very few of those who returned had made even a belated effort to prevent infection. These former patients with new infections accounted for 26·56 per cent. of the total venereal disease diagnosed at the Divisional Clinic during 1939.

We have had continued success during the year, with the use of "M & B 693" in the treatment of gonorrhoea.

The use of "M & B 693" and other sulphanilamides has had a marked effect on the attendances at our clinic, the total visits made by patients during 1939 being reduced by 48,750. The irrigation room which was once the most active room in the clinic, is now almost deserted.

In several former reports I recommended the formation of a Board or Committee with a representative from each State to co-ordinate the venereal disease control activities of the several States. I once again bring this suggestion forward with the recommendation that steps be taken, without delay, to form such a board.

VENEREAL DISEASES ACT, 1918.

REPORT ON NOTIFICATIONS RECEIVED FOR THE YEAR ENDED 31st DECEMBER, 1939.

Notifications of venereal disease infection received during 1939 totalled 5,851, a decrease of 315 as compared with the previous year. Of these notifications 26·3% came from private practitioners as compared with 28·1% in 1938 and 20·8% in 1937.

Syphilis.—Of the 5,851 total notifications received during 1939, 1,203 were for syphilis (males 778 and females 425), a figure 261 in excess of that for 1938.

The sex ratio of notified cases for 1939 was 1·83 males to 1 female.

Of the cases of syphilis notified during 1939, 14·3% were being treated privately as compared with 23·6% in 1938, and 11·1% in 1937.

Of the total notifications of venereal disease received during 1939, syphilis contributed 20·56% as compared with 15·21% in 1938, and 17·67% in 1937.

The notifications of syphilis gave an incidence of 43.7 per 100,000 of mean population for 1939 as compared with 34·6 in 1938 and 36·9 in 1937.

Gonorrhoea.—Of the 5,851 total notifications received during 1939, 4,367 were for gonorrhoea (males 3,789 and females 578), a figure 477 below that for 1938.

The sex ratio of notified cases was 6·55 males to 1 female.

Of the cases of gonorrhoea notified during 1939, 26·1% were being treated privately as compared with 24·1% in 1938 and 20·1% in 1937.

The percentage of cases of gonorrhoea in the total notifications of venereal disease received during 1939 was 74·64% as compared with 78·18% in 1938 and 75·32% in 1937.

The notifications of gonorrhoea gave an incidence of 158·8 per 100,000 of mean population for 1939 compared with 178·0 in 1938 and 156·9 in 1937.

Other Forms of Venereal Disease.

Soft Chancre (Chancroid).—14 cases (13 males and 1 female) were notified, being ·24% of the total notifications of venereal disease compared with ·11% in 1938 and ·05% in 1937.

Gonococcal Ophthalmia.—There were 6 notifications (all male), being ·10% of the total notifications compared with none in 1938 and ·02% in 1937.

Venereal Warts.—Thirty-nine cases were notified (all male), being ·66% of the total notifications as compared with ·84% in 1938 and ·71% in 1937.

Gleet.—Two hundred and twenty-one cases (220 males and 1 female) were notified, being 3·77% of the total notifications, compared with 5·65% in 1938 and 6·13% in 1937.

Venereal Granuloma.—One case was notified (male).

Of the notifications under the above group heading (other forms of venereal disease), 78·6% came from private medical practitioners.

Failure to continue Treatment.

During 1939, the names and addresses of 2,033 defaulters (1,690 males and 343 females) were notified. This figure was 190 above that for 1938.

On account of incorrect information having been given or to patients having failed to notify change of address, 702 letters were returned unclaimed, giving 34·55% undelivered letters as compared with 38·63 in 1938 and 32·21 in 1937.

Clinics.

Attendances at clinics for males totalled 144,017 (69·6% of this total representing attendances at the Health Department Clinic in the Division of Social Hygiene), compared with 200,243 in 1938 and 198,528 in 1937.

At the clinics for females the attendances were 28,571 (47·9% of this total being at the special clinic at the Rachel Forster Hospital for Women and Children), compared with 30,178 in 1938 and 31,365 in 1937.

The sex ratio of attendances was 5·05 males to 1 female, compared with 6·63 males to 1 female in 1938 and 6·33 males to 1 female in 1937.

Metropolitan District.—Nine clinics are available. The clinic at the Health Department (Albert Street entrance), Sydney, is continuous during the day time and closes at 8.30 p.m. on week days. The prophylactic facilities at this clinic are being made use of in increasing degree.

Newcastle District.—The clinic at Newcastle Hospital provided treatment for 67·6% of those notified from the Newcastle district in 1939 compared with 85·2% in the previous year.

District General Hospitals.—During the year, District Hospitals outside the metropolitan area provided treatment in varying degree for persons suffering from venereal disease. As has been mentioned in previous reports the provision of satisfactory treatment in rural districts is a difficult matter. During the year the various hospitals concerned have given help in so far as they were able.

The rapidly increasing population of Port Kembla and district has brought under notice the need for adequate hospital facilities for those infected with venereal disease.

Bed Accommodation.—Beds are available in the metropolitan area for 13 males and 38 females.

Health Department Clinic (93 Macquarie-street, Sydney).—This clinic showed a decrease of 150 in the total of new patients and former patients who returned for diagnoses during the year 1939, as compared with the previous year, and closed with a carry over of 1882 patients. This is a decrease of 211 compared with the carry over of the previous year. Of the new patients and former patients returned for diagnosis, 57·6% were non-venereal as compared with 57·4% for the year 1938. 59·2% of all notified gonorrhoea in the male and 44·1% of all notified syphilis in the male for the year 1939, were notified from this clinic.

The following figures are a record of the clinic registrations, discharges, etc., for 1939 :—

Patients carried forward from 1938 ...			2,093
New patients registered in 1938 ...		3,877	
Former patients who have reattended after discharge ...		2,287	
		6,164	
Gonorrhoea ...	2,242		
Syphilis ...	343		
Venereal Warts ...	36		
Chancroid ...	1		
Gonococcal Ophthalmia ...	2		
	2,624		
Non-Venereal ...	3,540		
	6,164		6,164
Total ...			8,257

Attendances—100,300.

Return showing cases finalised at Divisional Clinic during 1939 :—

	Syphilis.	Gonorrhoea.	Venereal Warts.	Gonococcal Ophthalmia.	Chancroid.	Non-Venereal.	Not diagnosed.	Total.
Discharged	133	1,839	41	...	1	2,817	...	4,831
Transferred	118	203	2	2	...	19	93	437
Left State	91	195	1	...	...	52	105	444
Defaulters	89	395	4	...	...	15	160	663
Totals	431	2,632	48	2	1	2,903	358	6,375
Patients remaining on clinic and carried forward to 1940								1,882
Total under treatment								8,257

Of the 8,257 patients under treatment 8·0 per cent. became permanent defaulters (showing an increase of 0·6 per cent.) as compared with 7·4 per cent. in 1938.

Pathological Examinations.—In 1939, 50,792 serological tests were made on 21,794 specimens; in 1938 the tests were 46,752 on 20,278 specimens and in 1937 were 40,977 on 18,673 specimens.

In 1939, 22,323 smears were examined for the detection of gonococci as compared with 24,712 in 1938 and 19,798 in 1937.

Examination for spirochaetes numbered 362 in 1939 as compared with 167 in 1938 and 99 in 1937.

Prosecutions.—Action was taken against twenty-five (25) persons for breach of Section 5 (failure to continue under treatment).

The following tables are appended :—

Table 1.—Notifications received during the year 1939 arranged in order of district from which the notifications are received.

Table 2.—Return of cases of Venereal Disease notified during 1939 showing forms of disease and age and sex of patients.

Table 3.—Diagnostic examinations for venereal disease made in the Bureau of Microbiology during the year 1937 to 1939 inclusive.

Table 4.—Summary of annual attendances at public clinics 1937 to 1939.

TABLE 1.—Notifications received during 1939, arranged in order of Districts.

Disease.	Metropolitan Area.	Newcastle District.	Remainder of State.
Gonorrhoea	3,791	371	205
Syphilis	1,105	42	56
Soft Chancre	13	1	...
Gleet	210	9	2
Venereal Warts	39	...	...
Gonorrhoeal Ophthalmia	2	...	4
Venereal Granuloma	1	...	...
Total	5,161	423	267

TABLE 2.—Return of Cases of Venereal Disease notified during 1939, showing forms of Disease and Age and Sex of Patients.

Disease.	0–5.		6–10.		11–15.		16–20.		21–25.		26–30.		31–35		36–40.		41–45.		46–50.		Over 50.		Age not Stated.		Totals.		Grand Total.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Gonorrhoea	1	16	...	21	13	11	484	137	1,114	178	946	97	515	61	280	28	210	14	107	5	104	4	15	6	3,789	578	4,367
Syphilis	12	18	5	6	9	2	23	47	116	69	101	73	68	53	84	39	86	34	62	28	184	42	28	13	778	425	1,203
Soft Chancre	...	...	...	...	...	...	1	...	4	1	7	...	...	...	1	...	...	...	...	...	...	...	...	...	13	1	14
Gleet	...	...	...	...	...	...	5	...	33	...	46	1	38	...	26	...	40	...	16	...	13	...	3	...	220	1	221
Venereal Warts	...	...	...	...	...	...	5	...	15	...	5	...	8	...	2	...	3	...	...	...	1	...	...	...	39	...	39
Gonorrhoeal Ophthalmia ...	2	...	...	...	...	...	...	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6	...	6
Venereal Granuloma.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	1
Total	15	34	5	27	22	13	518	184	1,286	248	1,105	171	629	114	393	67	339	49	185	33	302	46	47	19	4,846	1,005	5,851

TABLE 3.—Diagnostic Examinations for Venereal Diseases made in the Microbiological Laboratory.

Year.	Gonorrhoea (Smears and Urine).	Gonorrhoea (Complement Deviation Test).	Syphilis (Wassermann Reaction).	Syphilis (Kahn's Test).	Syphilis (Smears Spirochaetes).
1939	22,323	7,925	21,794	21,073	362

TABLE 4—Showing Annual Attendance Returns at Public Clinics for Treatment of Venereal Diseases.

Year.	Attendances.			New Cases.					
				Gonorrhoea.			Syphilis.		
	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.
				Health Department Clinic.					
1939	100,300	...	100,300	2,242	...	2,242	343	...	343
				Royal Prince Alfred Hospital.					
1939	19,024	4,956	23,980	145	32	177	31	20	51
				Sydney Hospital.					
1939	7,103	4,721	11,824	43	23	66	64	54	118
				Royal Alexandra Hospital for Children.					
1939	267	899	1,166	...	9	9	5	6	11
				Royal South Sydney Hospital.					
1939	2,916	297	3,213	21	...	21	8	8	16
				Royal North Shore Hospital.					
1939	2,511	1,513	4,024	60	17	77	9	10	19
				Rachel Forster Hospital for Women and Children.					
1939	...	13,691	13,691	...	268	268	...	146	146
				Balmain District Hospital.					
1939	468	355	923	1	...	1	3	5	8
				Parramatta District Hospital.					
1939	651	207	858	37	10	47	7	4	11
				Newcastle District Hospital.					
1939	10,770	1,927	12,697	223	30	253	14	19	33
				Western Suburbs District Hospital.					
1939	7	5	12	...	...	...	...	...	...

ACUTE ANTERIOR POLIOMYELITIS.

(*Infantile Paralysis.*)

The Consultative Council on Infantile Paralysis (Chairman, Sir Robert B. Wade) has continued its work of investigating and treating patients reported to have been paralysed as a result of an infection with the virus of acute anterior poliomyelitis.

The 1937-38 epidemic of acute anterior poliomyelitis was considered to have ended on September 30th, 1938. The beginning of the inter-epidemic period from October 1st, 1938, until the end of 1939, is described below.

October 1st to December 31st, 1938.

Between October 1st, 1938, and December 31st, 1938, three (3) cases were notified in the metropolitan area of Sydney and eleven (11) cases are known to have occurred in rural areas of New South Wales.

One other case was notified from a rural district. The diagnosis of this was not definite. There was weakness of the neck muscles at the onset of symptoms, but the patient recovered normal power within a few days. The cerebro-spinal fluid was not examined.

Two additional notifications were received from the metropolitan area—one of a male patient, aged 16 years, whose condition is now thought to have been due to haematomyelia. The second patient, a male aged 15 years, had muscular weakness probably due to an infection which caused a co-incident periostitis of the humerus, and not to the poliomyelitis virus.

Age and Sex Incidence :—

Age in years.	Number of Cases.			
	Metropolitan Area.		Rural Districts.	
	Male.	Female.	Male.	Female
$\frac{5}{12}$	...	...	1	...
1	...	...	1	...
2	...	...	2	1
3	...	...	2	...
4	...	...	1	1
5	1	...	...	...
7	1	...	...	...
9	...	1	...	...
12	...	...	...	1
21	...	...	1	...
	2	1	8	3

Amount of Paralysis :—

	Number of Patients.	
	Metropolitan Area.	Rural Districts.
Non-paralytic form	1	...
Paralysis at onset but normal power regained within three months	...	3
Severe paralysis necessitating treatment for many months	2	6
Death	...	2
Total	3	11

Districts from which Patients came :—In the metropolitan area the three patients came from widely separated areas. Of eleven patients in rural districts three came from the Hunter River District, four from the north coast, one from the northern tablelands, one from the south coast and two from Albury.

Date of Onset of Symptoms of Infection :—The dates of onset of symptoms in three patients in the Hunter River District were October 5th, November 16th, and December 15th. Two patients living in Taree developed symptoms early in October—One on October 1st and the other on October 10th. The onset of symptoms in both patients living in Albury occurred on November 13th.

Infantile Paralysis in New South Wales in 1939.

During 1939 thirteen cases of acute anterior poliomyelitis were notified in the metropolitan area of Sydney.

In two instances it is possible that the diagnosis was incorrect :—

(i) A male aged 49 developed flaccid paralysis of one arm and hand. Almost full function was restored in eleven months. The condition may have been caused by an infection other than the poliomyelitis virus.

(ii) A male aged 16 years had typical signs and symptoms of the non-paralytic form of the disease, but a cell count of the cerebro-spinal fluid was not done in the acute stage and the diagnosis must be considered doubtful.

Four additional notifications of patients who were said to have muscle weakness were received. All were females. Their ages were given as 17, 22, 40 and 44 years. The final diagnosis in each of these four cases is as follows: influenza and acute myositis, lymphadenitis, hysterical paralysis with hemianaesthesia following influenzal polioencephalitis, paralysis associated with chronic infection of the tonsils.

In rural areas of New South Wales seventeen (17) cases of acute anterior poliomyelitis are known to have occurred during 1939. Three of these were discovered months after infection and were not notified to the Board of Health.

Age and Sex Incidence:

Age in years.	Number of Cases.			
	Metropolitan Area.		Rural Districts.	
	Male.	Female.	Male.	Female.
0·5 to 1	2	...	...	...
1	...	...	...	...
2	1	...	2	1
3	...	1	...	...
4	...	1	1	1
5	...	...	1	...
6	...	...	1	2
7	...	...	2	...
8	1	1	...	...
9	...	1	...	...
10	...	...	...	1
11	...	...	1	...
13	1	...	...	...
15	...	...	1	...
16	1	...	...	...
20	1	...	...	...
24	...	...	1	...
27	...	...	1	...
28	...	1	...	...
48	...	...	1	...
49	1	...	...	...
	8	5	12	5

Amount of Paralysis:

	Number of Patients.	
	Metropolitan Area.	Rural Districts.
Non-paralytic form	4	3
Paralysis at onset but normal power regained within three months	6	5
Severe paralysis necessitating treatment for many months	2	9
Death	1	...
Total	13	17

Districts from which Patients Came:—

(a) Metropolitan area.

There were two patients from Warringah Shire. The remainder came from widely separated areas.

(b) Rural districts.

Four patients came from Macleay Shire. Two came from Wentworth which is adjacent to Mildura—a town on the Victorian border in which a large number of cases occurred during the 1937-38 epidemic, and two from the Hunter River District. The remainder were from widely separated areas.

Date of Onset of Symptoms of Infection (Metropolitan area)—

The date of onset of symptoms in ten of thirteen patients was between the middle of May and the middle of August. The patient who died developed the disease in January. Two patients had their onset during the last week of December.

Seasonal Incidence Related to Severity (Rural districts)—

Eight of the nine severely paralysed patients were infected during the first six months of the year.

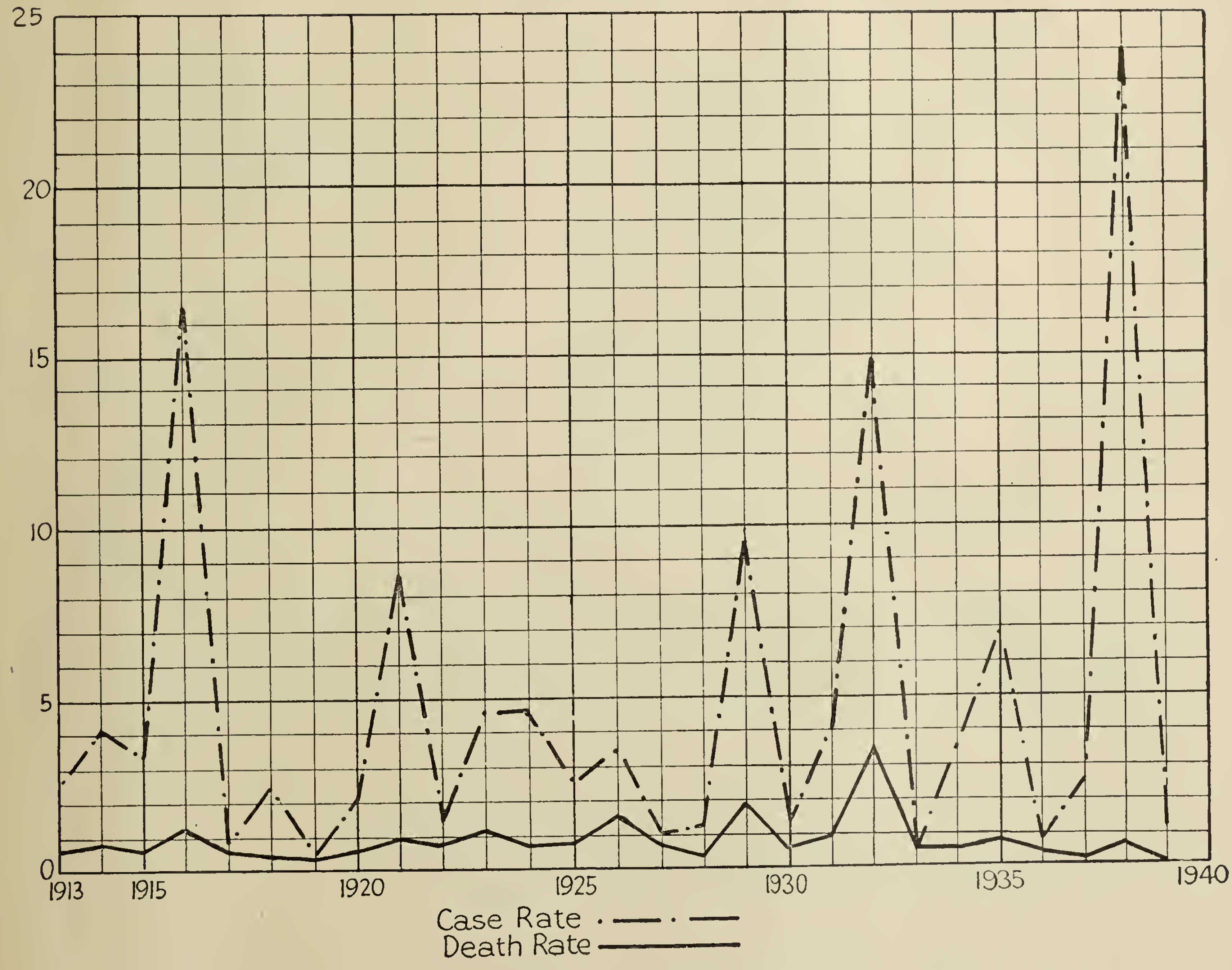
The onset of symptoms in the ninth patient was late in November.

The Council investigated or supervised the treatment of 422 patients during the year. One hundred and twenty-four (124) of these received muscle re-education as in-patients at public hospitals or convalescent homes. One hundred and seventy-one (171) were given muscle re-education as out-patients at public hospitals. Information concerning the condition of 127 patients was received by correspondence.

GRAPH No. 11.

INFANTILE PARALYSIS.

Annual Death Rate and Case Rate per 100,000 of the Population in New South Wales, 1913-1939.



The transfer of 17 paralysed patients from rural districts to metropolitan hospitals was arranged. Four paralysed patients could not attend a hospital for muscle re-education. The Council employed four itinerant masseuses to treat two of these patients in their own homes, one in a sanitarium, and one in Goulburn Gaol.

The Council arranged for the provision of fares in order that 23 indigent patients might attend hospital for treatment or examination.

The Council supplied surgical appliances for 38 paralysed patients.

Vocational Training of Patients in Hospital.

Many severely paralysed patients were treated in hospital for long periods. It was obviously desirable that vocational training should be given to those patients who were of a suitable age, and who would not be able to compete in the ordinary labour market owing to physical disability. An investigation was made into the facilities existing in New South Wales for vocational guidance and vocational training. The only method of vocational training available to patients in hospital is by correspondence courses. Six patients have been doing correspondence courses conducted by the Technical College, and one a course given by the Marconi School of Wireless. It was considered that other patients over the age of 14 years would not have benefited from correspondence courses. They would, however, have been able to learn a trade such as bootmaking or cabinet making if there had been the facilities to teach it to them. The Council considers that there is urgent need for an organisation which will provide vocational training for crippled persons in New South Wales.

SECTION I—B.

PUBLIC HEALTH ADMINISTRATION.

CHEMICAL LABORATORY.

REPORT OF THE GOVERNMENT ANALYST FOR THE YEAR ENDED 31ST DECEMBER, 1939.

Staff:

Government Analyst	Sidney G. Walton, F.A.C.I.
Second Government Analyst	Harold B. Taylor, M.C., V.D., D.Sc., F.I.C., F.A.C.I.
Senior Assistant Government Analyst	Arthur D. Dibley, A.S.T.C., A.A.C.I.
Assistant Government Analyst	Robert G. O'Brien, A.S.T.C., A.A.C.I.
Analysts	Ernest S. Ogg, B. Sc., A.A.C.I. William F. Fisher, A.S.T.C., A.A.C.I. Ronald C. Sparks, A.S.T.C., A.A.C.I. Thomas A. McDonald, A.S.T.C. Edward R. Cole, B. Sc., M.P.S. Malcolm Andrews, B.Sc.
Laboratory Assistants	Victor Williams. Ronald McDonough. William H. Collins.
Laboratory Attendant	Arthur G. Fletcher.
Milk Tester	John A. Horan, H.D.D.
Clerk	Grace McGlynn.
Two Office Assistants.	

The number of samples examined in the Chemical Laboratory during the year 1939 amounted to 33,972, representing an increase of over 300 samples in comparison with the previous year. The number of milk samples was less than in 1938, but practically every other branch of the work showed an increase. The administration of the Pure Food Act necessitated the examination of 31,206 samples, while 2,766 samples were examined for the public services of the State.

The following table gives particulars of the milk adulterations recorded in 1939 :—

PARTICULARS OF MILK ADULTERATIONS.

Authority.	Number and Proportion of Samples Adulterated.										
	Total Collected.	Deficient in milk-fat		Containing added water		Deficient in milk-fat and containing added water		Containing dirt.		Total.	
		No.	%	No.	%	No.	%	No.	%	No.	%
Metropolitan Area	13,337	134	1·00	32	0·23	8	0·06	37	0·27	211	1·58
Country Districts	4,230	118	2·78	60	1·41	9	0·21	61	1·44	248	5·86
Milk Board	4,129	70	1·69	20	0·48	5	0·12	9	0·21	104	2·51
Totals	21,696	322	1·48	112	0·51	22	0·10	107	0·49	563	2·59

Consequent upon the amendment by the Milk Board of regulations under the Milk Act governing the pasteurisation of milk whereby it is prescribed that only the holding process shall be used for the treatment of milk in the Metropolitan Milk Producing Districts, consideration was given by the Health Department to the alteration of the standard for milk under the Pure Food Act in this respect. After reviewing all aspects of the question, it was decided to recommend that milk in this State should be pasteurised only by the holding process.

Another regulation approved under the Milk Act during 1939 was one requiring that all raw milk sold in the Metropolitan Milk Producing District should have a methylene blue reductase test of not less than 5½ hours, and that special raw milk should have a methylene blue reductase test of not less than 8 hours. No method for carrying out the test has been prescribed. As the modified method recommended by the English Ministry of Health considerably lessens the reduction period, it is not suitable for the times prescribed under the Milk Act. Consideration has been given to the amendment of Regulation 24 of the Pure Food Act for milk to incorporate a methylene blue reductase test. It was decided to recommend a minimum reduction period of 4 hours for raw milk and 5½ hours for special raw milk, both tests to be performed by the exact procedure recommended in the English Ministry of Health Memo. No. 139/Food, 1937. From work carried out in this Laboratory it is estimated that the times recommended would approximately correspond to those prescribed under the Milk Act.

As a result of close observation of the milk supply both in the metropolitan and country districts, it has been found that some of the milk has been delivered to consumers in a dirty condition. From tests made of the nature of the sediment found in samples it is evident that much of this dirt comes from the dairy, and that some milk has been produced under unhygienic conditions and sold without adequate straining. Prosecutions were instituted in a large number of cases with successful results. In one instance, after conviction by a magistrate, the case was dismissed on appeal, the judge holding that there was a possibility of the sediment being introduced into the milk during collection by the inspector. An elaborate series of tests was undertaken to determine the possibility of adventitious sediment finding its way into the sample by this means. Although sample bottles and milk were exposed for periods up to one-half hour in main thoroughfares carrying heavy traffic, in no case did the sediment obtained in this way amount to more than 0·3 milligramme per pint. As the sample subject to appeal contained approximately 4 milligrammes per pint of dry sediment similar to stable dirt, it is very improbable that the sediment found could have been accidently introduced during the collection of the sample by the inspector. Under the provisions of the Pure Food Act it is necessary for a sample purchased for analysis to be divided into three parts. During this division, some exposure must necessarily occur, and it is unfortunate that an appeal should have been upheld on the point of the possibility of accidental contamination during collection. There is still some milk being offered to the consumer in a dirty condition, and the matter of the division of samples in a manner which will satisfy legal requirements is receiving consideration.

The samples other than milk submitted in connection with the administration of the Pure Food Act totalled 9,510, embracing 9,355 foods and 155 drugs.

Fertiliser Bags for the Packing of Foodstuffs.—Shortly after the declaration of war the shortage of bags on the market became acute. Application was made to the Department for permission to use washed fertiliser bags for the packing of foodstuffs. Two washed bags, which had previously contained, respectively, blood and bone and superphosphates, were forwarded with a request for permission to use similar bags for the packing of foodstuffs. After an examination of these bags, however, it was decided that permission could not be given for the use of bags such as these as food containers.

Beer.—During the year, inspection brought to light a most undesirable practice, which was found to be common to many hotels, of salvaging the waste beer from the drip trays and bottling it for sale or for serving customers in the bar. In some instances it was found that the waste pipe from the drip tray, apparently connected to the sewer, had been tapped and another pipe inserted to carry the contents down to a cask in the cellar. Prosecution against offending hotel-keepers for the sale of waste beer took place in a number of cases, with successful results. This waste beer was evidently the drainage from drip trays and was in a very deteriorated condition, in the majority of cases containing large quantities of yeast and dirt, and in some instances house flies and fruit flies and their pupae being present. In order to eliminate this practice, a regulation was framed under the pure Food Act providing that every receptacle for waste beer must at all times contain sufficient methyl violet to impart to the contents a distinct violet colour. Although complaints have been made in regard to the inconvenience of using this dyestuff, the regulation has proved effective in checking the offence. Since the passing of the regulation, successful prosecutions have been undertaken in a number of cases where, although there was no evidence that beer from the drip trays was being sold to customers, the hotel-keepers failed to comply with the provisions of the regulation requiring that the drip tray must at all times contain sufficient methyl violet to impart to the contents a distinct violet colour. It has been found in the Laboratory that approximately one-third of a grain of methyl violet per gallon of beer is required to impart the required colour. This amount may be regarded as a minimum and it is recommended that more than this quantity be used.

Cake Decoration.—A sample of cake decoration purchased from one of the largest retail stores in Sydney proved on examination to consist of lead glass coated with silver. As decorations of this type constituted a potential danger, steps were taken to have this article withdrawn from sale.

Cashew Butter.—A sample of alleged cashew butter submitted for examination was found to contain 40 per cent. of cocoanut oil. In connection with this sample, an analysis was made in the Laboratory of genuine cashew nuts which gave the following figures:—

Moisture	5·0 per cent.
Fat	36·8 ,,
Iodine value of fat	84·9
Saponification value...	195·4
Refractive Index at 40°C.	1·4628

The fat constants agree closely with those found by Needs ("Analyst," 1937, p. 665), but the percentage of fat obtained (46·8) is considerably higher than the amount (30·0%) reported by Needs.

Fruit Drinks.—A survey of fruit drinks sold at milk bars and soft drink shops in the City area showed a great variety in the type of drink supplied. The amount of fruit juice varied from nil to as much as 50 per cent., and was distributed among the 36 samples examined as follows :—

50%	fruit juice	4 samples
25–50%	,, ,,	7 ,,
20–25%	,, ,,	2 ,,
15–20%	,, ,,	6 ,,
10–15%	,, ,,	6 ,,
5–10%	,, ,,	1 sample
1– 5%	,, ,,	3 samples
Less than 1%	,, ,,	7 ,,

The great majority of these samples contained artificial colouring and flavouring, and in two cases preservative had been added. In a few cases, the colouring matter used was not permitted by regulation. In view of the great diversity shown in the composition of these drinks it is proposed to recommend the formulation of standards for the control of such beverages.

Jams.—In response to a request by the Fruit Industry Sugar Concession Commission for information in regard to the final percentage of cane sugar in manufactured jams, 150 samples, representative of practically the whole of the jams on the market in this State were examined. The cane sugar content of the finished product ranged between approximately 55 and 70 per cent., the variation in the principal jams being as follows :—

Apricot	59–69 per cent.
Peach	59–69 ,,
Plum	61–67 ,,
Raspberry	63–69 ,,

Diethylene Glycol as a Vehicle for Essences.—One sample of essence of lemon examined during the year was found to contain diethylene glycol, a vehicle not approved by the Department. The question of the use of this substance has been under discussion for some time, and it was decided that its use as a vehicle for essences would not be permitted. Advice has now been received from the Commonwealth authorities that, in view of the fact that a number of fatalities occurred in America in 1937 following on the oral administration of diethylene glycol, consideration was being given to the amendment of the Customs (Prohibited Imports) Regulation with a view to prohibiting the importation of foods, drinks, or preparations used in the manufacture or preparation of foods or drinks, containing glycol or glycol derivatives.

Tomato Sauce.—The mould content of tomato sauce examined in the Laboratory this year was found in most cases to be very high, exceeding the maximum amount permitted, viz., 50 per cent. of fields positive. As the growers experienced a drought season, it is probable that the high mould count was the result of the adverse weather conditions. In the circumstances legal action was not taken, the manufacturers being warned to discontinue the use of deteriorated stock.

Tripe.—Of 204 samples of tripe submitted for examination in connection with the bleaching of this substance, 113 were found to be adulterated, due to failure to comply with the limits of pH imposed by regulation. Though the pH values were inserted in the regulation with the intention of prohibiting the peroxide bleaching of tripe, the practice still continues, the efforts of manufacturers now being directed towards treatment of the tripe subsequent to bleaching with a view to keeping the article within the limits imposed by the standard. When the pressure of work permits it is proposed to undertake an investigation with a view to ascertaining the effect on tripe of this modified treatment.

Tinned Sild.—A number of samples of tinned sild sold in N.S.W. were examined for tin content. In no case was the amount found in excess of the permitted amount, although in two cases it approached very closely to the maximum allowed. Two tins forwarded from Tasmania, however, were found to contain, respectively, 685 and 1,000 parts per million of tin.

Spirits.—Of 144 samples of spirits examined, 6 samples sold as overproof were found to be underproof, and 4 had an alcoholic strength lower than the prescribed 35° U.P. This proportion of adulteration shows the necessity for constant supervision.

Arsenical spray on Cabbages.—A number of cabbages examined during the year were found to be heavily coated with lead arsenate, derived from the use of spray. Although most of the poison was found on the outer leaves and stalk, a certain quantity was also present on the inner leaves or that part used for cooking. In two instances, lead arsenate amounting to 18 grains and 14 grains per lb., respectively, were found on the outer leaves and stalk.

Vinegar.—Two samples sold as vinegar were found to be imitation vinegar, giving the following figures :—

Acetic acid	4·2 %	4·2 %
Total solids	17·9 ,,	13·5 ,,
Ash	0·05,,	0·02,,
$P_2 O_5$	Nil	Nil
Iodine value	5·6	2·4
Oxidation value	19·6	18

Legal action was recommended in each case.

Cod Liver Oil Emulsion with Hypophosphites.—Nine samples were examined during the year, not one of which was found to have been prepared in accordance with the formula prescribed in the British Pharmaceutical Codex. In each instance the hypophosphite content was lower than that prescribed.

Lipsticks.—An expensive brand of lipstick examined during the year was found to contain 1·2 per cent. of selenium and 5·5 per cent. of cadmium, both of which are recognised as toxic substances. The sale of this article has been prohibited in this State.

Amended Regulations.—A number of amended regulations were gazetted during the year, the amendments including several new standards.

SAMPLES SUBMITTED FOR THE PUBLIC SERVICES OF THE STATE.

The samples examined for the public services of the State numbered 2,766, submitted by the authorities specified hereunder.

Subsidised Institutions required the examination of 354 samples, comprising foods, medicines, human milk, vomit, stomach lavage, etc.

The *Government Stores Department* submitted 562 samples. Samples failing to conform to requirement were lubricating oils and greases and several drugs.

The *Pharmacy Board* submitted two samples in connection with the administration of the Poisons Act.

Police Authorities submitted 519 exhibits for examination in the pursuance of criminal investigations, 11 exhibits in regard to charges of being in possession of drugs in contravention of the Police Offences Amendment (Drugs) Act, and 4 exhibits of animal viscera. The table given hereunder gives details of the charges investigated :—

Particulars of Charge.	Number of Exhibits.
Criminal Investigations.	
Administering abortifacients	8
Arson	25
Blood, *re* driving motor car whilst under influence of intoxicating liquor	1
Counterfeit coining	49
Foods, *re* administration of poison	2
Causing malicious injury	4
Manslaughter	11
Murder	7
Murder, attempted	81
Suicide	5
Suicide, attempted	6
Uncertified deaths	261
Robbery	41
Animal poisoning	7
Rape	4
Miscellaneous	7
Total	519
Police Offences Amendment (Drugs) Act.	
Blood, *re* drug addiction	1
Cocaine	6
Cocaine and Diamorphine	1
Diamorphine	1
Opium	2
Total	11

An interesting criminal investigation undertaken during the year was in connection with a case of attempted arson in a shopping arcade in the centre of Sydney. Had the attempt proved successful, it is possible that a very serious outbreak of fire would have occurred in a very congested and valuable section in the heart of the city. The occupier of a shop in the arcade noticed drillings in the bottom of certain stock cases and on the floor. Suspecting that an attempt had been made to enter his premises, he communicated with the Police, who made a searching examination of the whole of the premises on each floor. As a result, it was found that certain elaborate devices for causing a fire had been placed underneath the shop floor. These devices consisted of celluloid balls containing glycerine, suspended in such a manner that when a candle had been lit and allowed to burn a considerable time the balls would have ignited, causing the glycerine to come into contact with potassium permanganate, this in turn igniting quantities of paper, cardboard and other inflammable material which had been impregnated with oil. The reason for the use of such elaborate devices was to allow sufficient time to elapse before the outbreak of the fire to establish an alibi for the incendiary. As a further means of averting suspicion, the agents for starting the fire were fastened under the floor of the adjoining premises. Some time previously a fire occurred in the same arcade under suspicious circumstances. A brother of the person accused in the case under notice was found on the premises, and was charged with breaking and entering. In the present instance, a number of exhibits found on the premises of the person charged, together with the devices described above, were submitted for examination, and these exhibits, on analysis, yielded sufficient evidence to convict the accused, who received a sentence of three years for attempted arson.

Animal Viscera.—Viscera in connection with 4 cases of animal poisoning were submitted by the Police, 3 of which were examined for poison with negative results, and 1 of which contained strychnine.

Coroners' Enquiries.—Coroners required the examination of exhibits in connection with 134 deaths which formed the subject of police investigation.

The following table gives particulars of the results of chemical examination :—

Nature of Exhibit.	Result of Chemical Examination.	Number of Deaths.
Viscera (stomach and contents, intestines and solid organs).	No poison found	35
,, ,,	Arsenic	5
,, ,,	Bromoisovalerianylurea	1
,, ,,	Chloral hydrate	3
,, ,,	Chloral hydrate and phenobarbitone	1
,, ,,	Cyanide	6
,, ,,	Eucalyptus oil preparation	1
,, ,,	Lysol	3
,, ,,	Muriatic acid	1
,, ,,	Nicotine	1
,, ,,	Opium and phenobarbitone	1
,, ,,	Phenobarbitone	2
,, ,,	Picrotoxin	1
,, ,,	Strychnine	14
,, ,,	Veronal	1
Viscera and blood	Negative for poison; positive for alcohol	2
Blood	Negative for alcohol	9
,,	Positive for alcohol	14
,,	Negative for carbon-monoxide	3
,,	Positive for carbon-monoxide	3
,,	Negative for drowning	1
,,	Positive for drowning	9
Blood and urine	Positive for drowning and alcohol	1
,,	Positive for alcohol	6
Urine	Negative for alcohol	2
,,	Positive for alcohol	8
	Total	134

During the year a death occurred as the result of the administration of a large quantity of picrotoxin. In response to reports received from abroad of the successful treatment of schizophrenia by use of considerable quantities of picrotoxin, it was decided to treat a mental patient at a metropolitan hospital by the substitution of this substance for cardiazol to produce convulsions. The patient received 48 milligrammes of picrotoxin in two injections. Five minutes after the second injection convulsions ensued. Shortly after respiration became feeble and the patient became pulseless. Although artificial respiration was applied, the patient died. Exhibits were submitted to this Laboratory, the analysis of which established that death was due to picrotoxin poisoning. A verdict of death from misadventure was recorded at the Coroner's inquiry.

Early in the year exhibits were forwarded to this Laboratory for examination with a view to the establishment of the cause of death in a case of suspected strychnine poisoning. The death occurred in the country, and the local Government Medical Officer, on the clinical symptoms, formed the opinion that death was due to strychnine. Analyses of the exhibits submitted yielded negative results for the presence of strychnine or other poison. Despite this fact, the District Coroner, after consideration of the medical evidence furnished, recorded a verdict of suicide from strychnine poisoning. The relatives of the deceased, dissatisfied with the verdict, approached the Crown in order to have the matter further inquired into. After investigation had been made, the Crown applied to the Supreme Court for permission to order a second inquest. The application was acceded to, and a second inquest held, at which further evidence was given establishing the fact that death was due to natural causes. The previous verdict was therefore annulled, and a verdict of death from natural causes recorded. The deceased in the case was an aged man, death occurring during a severe heat wave.

After taking an A.P.C. powder, a woman remarked on the bitter taste of the powder. Later she complained of stiffness in the limbs, and subsequently death took place. As a result of the analysis of the exhibits submitted, it was found that death was due to strychnine poisoning. Approximately 4 grains of strychnine were obtained from the viscera forwarded, and traces of strychnine were also found on the wrapper which had contained the A.P.C. powder. A searching inquiry was made as to how the strychnine came to be in the powder. The methods used in the manufacture of the particular brand of A.P.C. powder established the improbability of strychnine being included in the packet during manufacture. A large number of similar A.P.C. powders, including some from the box from which the fatal powder was taken, were examined for strychnine with negative results. At the coroner's inquiry, a verdict of death from strychnine poisoning wilfully administered by deceased herself was recorded.

The case of a sudden death in an ensilage pit draws attention to the danger of fatal asphyxia which may overtake workers engaged in silo work. Unless the danger of carbon dioxide asphyxia is realised there is a possibility in cases such as this that deaths from carbon dioxide may be ascribed to other causes, such as heart failure, etc. In the case under notice, the body of a man was found lying in an ensilage pit. As the possibility of death from asphyxiation was recognised, samples of air were collected from the pit and submitted to this Laboratory for analysis. The following were the average results obtained :—

Carbon dioxide	38·1 per cent.
Oxygen	10·5 ,,
Nitrogen	51·4 ,,

No evidence was obtained of the presence of hydrocyanic acid, sulphuretted hydrogen, arseniuretted hydrogen, carbon monoxide or methane. Deaths from carbon dioxide poisoning have been recorded in the United States of America, but this is the first instance in New South Wales that has come to my knowledge. The occurrence of the carbon dioxide is due to the direct respiration of the plant cells. The oxygen in the air spaces between the cut fodder is first of all depleted of its oxygen and replaced by carbon dioxide. It is stated that analysis of this air even within 24 hours after ensilage very often shows no free oxygen. After this oxygen has been depleted a layer of carbon dioxide commences to form and may reach several feet above the ensilage. Persons breathing the concentrated gases from the ensilage may collapse suddenly and die of asphyxia, 10 per cent. of carbon dioxide in the air being fatal. It is stated that the maximum evolution of carbon dioxide takes place when immature ensilage, finely chopped, is placed in a pit or a silo with daily fillings and nightly intervals. Precautions should therefore be taken in every silo. Gas formed can be driven out or diffused by vigorously waving a stirring device, such as the leafy branch of a tree, etc. If any doubt exists as to the purity of the air, the effects on a lighted match or lantern flame should be observed before entering the pit.

An unusual case of recovery from cyanide poisoning came under notice during the year. After consuming a considerable quantity of cyanide dissolved in beer, the would-be suicide was rapidly driven to a hospital in the vicinity and given prompt treatment. The stomach washings (93 fluid ounces) were forwarded for analysis, and were found to contain 1·1 grains of cyanide calculated as potassium cyanide. The patient completely recovered. The case is recorded as one of interest, inasmuch as the ingestion of cyanide is usually very quickly fatal.

Municipal and Departmental Authorities submitted 609 samples of water and 175 samples of effluent. Sixty-five samples of water were examined for the Water Conservation and Irrigation Commission in connection with remedial measures to be undertaken at Burrinjuck Dam.

Industrial Hygiene Authorities submitted 347 samples. In continuation of the investigation regarding silicosis, samples of dust, coal, stone, post-mortem specimens, etc., have been examined during the year.

Miscellaneous Authorities forwarded 49 samples for examination.

The members of the staff, under the difficult conditions existing, have performed their duties in a very satisfactory manner, and several, in addition to carrying out their ordinary duties, have served on committees, such as those constituted by the Standards Association of Australia, Departmental committees, etc.

S. G. WALTON,
Government Analyst.

PURE FOOD ACT, 1908.

REPORT OF THE CHIEF INSPECTOR ON THE GENERAL ADMINISTRATION OF THE PURE FOOD ACT, 1908, FOR THE YEAR ENDED 31st DECEMBER, 1939.

Staff.

Chief Inspector, C. V. Francis, M.R. San. I.; 1 Senior Inspector; 11 Metropolitan Inspectors; 2 Country Inspectors; 2 Assistants.

I submit herewith particulars of work performed by the staff of the Pure Food Branch for the year ended 31st December, 1939.

Milk.—Samples taken by officers of Branch totalled 11,865, of which 292 failed to comply with standard. 97 warnings were issued, and 195 prosecutions undertaken, fines and costs amounting to £464 7s. 6d.

Cream.—163 samples were taken, all but one complying with the standard.

Margarine.—Of 26 samples submitted, only one (manufactured in another State) failed to comply with the standard. The offending trader was fined £3 and costs.

Ice Cream and Ices.—Only two samples of 116 submitted for analysis failed to comply with standard. Convictions were recorded.

Meat.—7,402 samples were submitted for analysis. Warnings were issued in 162 cases, fines and costs being imposed in connection with 173 samples, amounting to £505 7s. 6d. There were many prosecutions also against tripe processors, whose product failed to comply with the prescribed pH figure. 23 convictions were recorded, fines and costs imposed amounting to £100 6s. 0d. 5,199 head of poultry, unfit for food, were destroyed at the Poultry Markets.

Bread.—58 samples of bread were analysed, only one prosecution resulting. Many structural improvements to bakeries were effected.

Beverages.—210 samples of cordials and temperance drinks were submitted. Several warnings for incorrect labelling or minor breaches were given. 7 samples contained prohibited saccharin, the offending traders being convicted and fined. The sale of fruit-juice beverages is increasing. 86 samples of beer, spirits, and wines, were taken; no action necessary.

Other Foods and Drugs.—Many samples of other foods and drugs were submitted, and the quality on examination and analysis was mostly satisfactory; otherwise appropriate action was taken.

Waste Beer.—Several prosecutions occurred for breaches of the regulation requiring added colouring matter, convictions being obtained.

Seizure and Destruction of Food and Drugs.—The quantity seized by officers of this Branch included 63 tons, in addition to 71,108 tins and other packages, 8,604 bags of vegetables and nuts, etc.

Premises.—Over 10,800 food premises were inspected. The Royal Agricultural Society's Show was also visited, 224 samples of food being obtained thereat, no food poisoning cases being reported.

C. V. FRANCIS,
Chief Food Inspector.

SUMMARY.

Milk Samples.

Analysis of Samples of Milk.	Samples taken by—		
	Departmental Officers.	Council's Inspectors.	Total.
Number of samples taken from all parts of the State	11,865	5,190	17,055
Number below standard	292	169	461
Number of warnings	97	69	166
Number of prosecutions	195	100	295
	£ s. d.	£ s. d.	£ s. d.
Amount of fines and costs	464 7 6	249 13 0	714 0 6

Food (other than milk) and Drugs.

Number of samples taken from all parts of the State	9,071
Number below standard	496
Number of warnings	283
Number of prosecutions	213
Amount of fines and costs	£635 16s. 6d.

Legal Proceedings.

By Officers of the Pure Food Branch.

	Prosecutions.	Fines and Costs.
		£ s. d.
Breaches of Pure Food Act and Regulations—		
Adulterated milk	195	464 7 6
Adulterated food and drugs	213	635 16 6
Food unfit for consumption seized and destroyed	7	83 19 0
Unclean premises	38	221 0 6
General breaches	35	71 18 0
Breaches of Venereal Diseases Act and Regulations	1	2 8 0
Grand Total	489	£1,479 9 6

ANNUAL REPORT OF THE ACTIVITIES OF THE SANITATION BRANCH DURING THE YEAR ENDED 31ST DECEMBER, 1939.

Staff.—Chief Sanitary Inspector, Mr. Geo. A. Garrow, M.R. San. I., T.P.; Senior Inspector, Mr. S. L. Parsons; 10 Certificated Inspectors and 1 Certificated Inspector and Licensed Surveyor.

Country and Metropolitan Districts, Routine and General Inspections, etc.

Towns.—Nine primary inspections and 50 re-inspections of towns were made.

Insanitary Buildings.—Two hundred and fifty-nine buildings were inspected, 40 of which were in such condition as to warrant the issue of a closing order certificate.

In the remaining cases, the Councils were requested to cause necessary repairs or alterations to be carried out.

Shop Premises.—Four hundred and nineteen shops (Butchers, Grocers, Barbers, etc.) were inspected and where found necessary, repairs, etc. were required to be carried out.

In a few instances legal proceedings were instituted against the trader.

Hospitals and Schools.—Ninety-seven separate premises were inspected.

Public Halls and Theatres.—Sixty-nine inspections were made and 23 air tests were carried out in conjunction with an Officer from the Division of Industrial Hygiene.

Hotel Premises.—One hundred and twenty hotels were inspected, and when required expert advice was given on behalf of the licensing Authorities both in and out of Court.

The co-operation between this Branch and the Licensing Authorities is a definite factor in raising the standard of hotels.

Swimming Pools.—Thirty-three pools including treatment plants were inspected and 145 samples of pool water were procured for chemical and bacteriological examination.

Cattle Slaughtering and Diseased Animals and Meat Act, 1902.—Two hundred and forty-five inspections were made of slaughtering premises including Abattoirs. In a few cases it was found necessary to institute legal proceedings against the traders.

Noxious Trades Act, 1902.—Eight hundred and twenty-seven inspections and re-inspections of Noxious Trades premises were made and several plans and sites of proposed trade premises were examined.

The provisions of the Act were extended to Erina Shire. The definitions of Rag Picker (now Rag Collector) Rag Dealer and Flock Maker were amended to provide means of combating the likelihood of unscrupulous persons flooding the market with filthy and unwashed rags.

Removal of Dead Stock from Flemington.—Twenty-three thousand, four hundred and thirty-four dead animals were removed from Flemington Sale and Trucking Yards by a private firm to its knackery premises.

Flock and Bedding Material.—Twenty-four samples of rags, flock and bedding material were obtained for examination and 73 inspections of the premises were made.

Several mattresses and pillows were purchased from second hand dealers and where found unclean legal proceedings were instituted against the trader and the articles destroyed.

Camps, Show Grounds, Cemeteries, etc.—Seventy-nine inspections were made. The unsatisfactory condition of 2 cemeteries necessitated the taking of action to prohibit further burials.

Sale Yards.—Eighteen inspections were made.

Scavenging Districts, Sanitary Depots and Proposed Sites.—Thirty-eight descriptions and plans of proposed scavenging districts were examined and where found necessary, the descriptions were either amended or recast in this office.

Three hundred and forty-five inspections of Sanitary Depots were made and in a few instances it was found necessary to institute legal proceedings against the contractors.

Of the 54 proposed depot sites inspected, 35 were found unsuitable and in consequence were not recommended.

In 2 cases approval was granted for the disposal of pan contents in ploughed furrows.

Sanitary Services.—The Sanitary Service of any town visited by officers of this Branch receives a very thorough inspection and in cases where unsatisfactory conditions are found, legal proceedings are instituted against the offender.

One Council has been required by notice under the Public Health (Amendment) Act, 1915 to instal a Garbage Removal Service.

Septic Tanks, Sewage Treatment Works. Public and Private Water Supplies.—Five hundred and fifty-three plans of proposed septic tanks were examined and where necessary the plans were amended.

Of the 381 sites inspected a number were found unsuitable and in consequence approval to instal the proposed septic tank could not be recommended.

One hundred and sixty-four inspections of existing septic tanks including sewage treatment works and effluent disposal areas were made and suitable action was recommended where found necessary.

Investigations respecting the source and storage of several water supplies were made and water samples were procured for examination.

Twenty investigations were made concerning alleged pollution of watercourses, result of a number of which necessitated action being taken by the controlling authority to prohibit the cause of pollution.

Six investigations were made of alleged pollution of oyster leases and the foreshores.

Samples of water, sewage, effluents and soils.—Two hundred and forty-three samples were obtained for chemical analysis and bacteriological examination.

Incinerators.—Thirty-six inspections were made of incinerators and 4 plans of sites for proposed incinerators were examined.

Unhealthy Building Land.—Two hundred and five inspections and 78 surveys were made of land considered to be unfit for building purposes. Ten notices were gazetted under Section 55 of the Public Health Act, 1902, and one notice was revoked the land having been made fit for building purposes.

Surveys have been effected and necessary plans and specifications prepared, of three other areas and in due course notices relating thereto will be gazetted.

The location of land notified in 1939 is as follows:—

Municipalities—Gosford, Wollongong, Randwick, Bexley, Mascot and Bankstown.

Shires—Blaxland, Lake Macquarie and Central Illawarra.

Land surveyed but not yet notified is situated in:—

Concord Municipality, Sutherland and Lake Macquarie Shires.

Extensive surveys have been made of areas at Narrabeen with the view to designing new specifications for the improvement of these areas, and in due course, necessary plans will be prepared.

At the request of the Central Illawarra Shire Council, an inspection was made of an area proposed to be resumed for Recreation and Housing Scheme and a report thereon was submitted following which a further and more detailed report on the Housing Scheme was furnished.

In connection with 5,351 enquiries from solicitors and others regarding notified land an amount of £668 17s. 6d. was received from search fees at 2s. 6d. each.

Infectious Diseases.—Twenty-five investigations were made and 36 specimens of faeces and urine were collected for examination.

Rat Infestation.—Four thousand, seven hundred and eight rats were examined in the Microbiological Laboratory and were found free from Plague and several live rats, trapped, were delivered to the School of Hygiene, Sydney University.

Sydney Wharves.—A sanitary Survey was made of the wharves by this Branch and where deemed necessary additional W.C. and Urinal accommodation was recommended, also action regarding rat eradication.

Nuisances.—Investigations were made into 408 inquiries and complaints concerning drainage and other alleged nuisances.

Sorting of Dead Wool.—Premises on which this process is being carried on are kept under observation.

Legal Proceedings and Prosecutions.—Officers of this Branch attended Court and gave evidence on behalf of the Licensing and other Authorities.

In connection with the 51 prosecutions instituted by this Department for breaches of the various Acts, Ordinances and Regulations, fines and costs amounting to £256 3s. 1d. were imposed.

Dairies Supervision Act.—Applications were received from several Shire Councils to be appointed local authority under the Act. On investigation of the respective applications only one was recommended.

Amendments to Acts, Regulations and Ordinances.—Several proposed amendments to the Local Government Ordinances have been submitted to and approved by the Board of Health under Section 4 of the Public Health (Amendment) Act, 1915.

The Public Health (Amendment) Act, 1939, amends the Public Health (Amendment) Act, 1937, respecting procedure relating to any proclamation made under the Act.

Disposal of Dairy Factory Wastes.—A good deal of attention is being given by officers of this Branch to the treatment and disposal of such wastes as their discharge into a watercourse creates most undesirable conditions.

Commonwealth Authorities.—From time to time throughout the year several Departments of the Commonwealth have approached this Department for a joint inspection and advice in matters respecting sewage treatment works, disposal of drainage and effluent and other matters relating to sanitation at Military Camps and other Commonwealth premises.

This attitude on the part of the Commonwealth Authorities is very much appreciated and incidentally enables discussion of problems which will ultimately affect the interests of the State Authorities.

GEO. A. GARROW,
Chief Inspector.

PRIVATE HOSPITALS ACT, 1908.

Report on the operation of the Act for the year ended 31st December, 1939, by B. van Someren, M.B., Ch.M., D.P.H., Medical Officer.

At the close of the year there were 537 licensed private hospitals in New South Wales, having a total of 5,254 beds, this being a reduction of 12 hospitals but an increase of 30 beds, compared with the figures for the previous year.

Of the 537 private hospitals, 203 with a total of 2,539 beds were located in the metropolitan area, and 334 having a total of 2,315 beds were situated in the country districts. The number of private hospitals in the metropolitan area decreased by 4 but the number of beds was increased by 31, whilst in the country there was a decrease of 8 hospitals and 1 bed.

Most of the hospitals are small, only 45 being licensed for the reception of more than 20 patients at any one time, while in 390 the accommodation does not exceed 10 cases at any one time.

Of the 537 hospitals licensed, 228 were for the reception of lying-in cases only, 51 for medical and surgical cases only, and 258 for the reception of medical, surgical, and lying-in cases.

Since 1934 there has been a steady decrease in the number of private hospitals licensed (with a corresponding decrease in the number of beds available, amounting in all to 744). It will be seen (Table III) that hospitals licensed to admit lying-in cases only show the largest percentage reduction (33·3 per cent.), and also that the decline has taken place largely at the expense of the small (1—5 bed) hospitals. Country and metropolitan hospitals have been affected to an equal extent.

On the other hand, during the same period (1934–39) there has been an increase of over 3,000 in the number of beds (including private and intermediate) in the public hospitals of the State. This increase is the result of an increasing demand by the people for treatment at the public hospitals, and for accommodation therein either in public wards or as private or " intermediate " patients.

Inspection of Private Hospitals.—All hospitals licensed under the Act are periodically inspected (usually biannually) by the Supervisory Nurses of the Department. It is gratifying to report that the great majority of licensees co-operate willingly with the Department in regard to any matters requiring attention, such as the effecting of improvements to premises.

The result of this has been that the improvement in the general standard of private hospitals, commented upon in previous annual reports, has been maintained.

In addition to ensuring that the Act and Regulations are observed, this Department seeks to give helpful advice to licensees in regard to questions of structural design, materials, equipment, etc., and welcomes inquiries from them on any matter relating to their hospitals.

Prosecutions.—There were no prosecutions under the Act during 1939, but it was necessary to issue a number of warnings on account of infringements of the Act, the more common ones being :—

(1) Exceeding licensed number of patients;
(2) Failing to notify immediately cases of infectious disease;
(3) Failing to keep hospital register entered to date.

Puerperal Infection in Private Hospitals.—Of the 81 cases of puerperal infection (excluding abortal sepsis) notified during 1939, 36 cases occurred in private hospitals, compared with 53 cases for the previous year.

Rest Homes and Convalescent Homes.—Although these are not required to be licensed under the Private Hospitals Act, 1908, a record is kept of them and they are inspected by the Supervisory Nurses. While most are conducted in a satisfactory manner, in some instances overcrowding and other undesirable conditions are found.

Private Hospitals Legislation.—Amendment of the existing " Private Hospitals Act, 1908 " has been promised for some years, the present Act being defective in many important respects. It is hoped that if this amending legislation is introduced it will provide for the licensing of rest and convalescent homes in addition to giving more effective control over the equipment and staffing of private hospitals.

Assistance rendered by other Departments.—The thanks of this Department are due to the Commissioner of Police and the Registrar of the Nurses' Registration Board and their officers for the ready and able assistance in connection with the administration of the Private Hospitals Act; also to the Board of Fire Commissioners of New South Wales for furnishing reports in regard to fire risks at certain premises.

TABLE I.—Showing Classification of Private Hospitals Licensed at 31st December, 1939, according to nature of cases received, and the total number of beds provided by each class of hospital :—

	Medical, Surgical, and Lying-in.		Medical and Surgical.		Lying-in.		Total.	
	No. of Hospitals.	No. of Beds.	No. of Hospitals.	No. of Beds.	No. of Hospitals.	No. of Beds.	No. of Hospitals.	No. of Beds.
Sydney and District	81	1,714	40	846	82	379	203	2,939
Country Districts	177	1,572	11	143	146	600	334	2,315
Total	258	3,286	51	989	228	979	537	5,254

Table II.—Showing Classification of Private Hospitals licensed at 31st December, 1939, with respect to size, as signified by the number of beds available.

Beds.	1.	2.	3.	4–5.	6–10.	11–20.	Over 20.	Total.
Sydney and District	8	11	22	27	52	46	37	203
Country Districts	26	30	42	64	108	56	8	334
Total	34	41	64	91	160	102	45	537

Comments on Tables I and II.—Table I—From the figures given in Table I, it will be seen that hospitals licensed for the reception of medical, surgical, and lying-in cases, constitute the greater proportion of those licensed, amounting to 48 per cent. of the total compared with 47·3 per cent. in 1938. Hospitals licensed for lying-in cases only constitute 42·4 per cent. of the total and for hospitals licensed to receive medical and surgical cases only 9·5 per cent. The corresponding figures for 1938, are 43·9 per cent. and 8·8 per cent. respectively.

The number of beds available was greatest in those hospitals licensed for the reception of all classes of cases, amounting to 62·5 per cent. of the total number, this figure being the same as for last year. Hospitals licensed for lying-in cases only, and for medical and surgical cases only, constituted 18·6 per cent. and 18·8 per cent. respectively, compared with 19·5 per cent. and 18 per cent. for 1938.

Table II.—The number of 4-10 bed hospitals is still the largest in proportion of all those licensed, being 46·7 per cent. compared with the corresponding figure of 46·1 per cent. for the previous year.

Table III.—Showing general decline in numbers of the different types of private hospitals in the five year period 1934–9.

	Total Hospitals.	No. Beds.	M.S.L.	M.S.	L.	1 Bed.	2 Bed.	3 Bed.	4–5 Bed.	6–10 Bed.	11–20 Bed.	Over 20.
1934	707	5,998	325	40	342	51	76	92	145	179	121	43
1939	537	5,254	258	51	228	34	41	64	91	160	102	45
Increase or Decrease...	—170	—744	—67	+11	—114	—17	—35	—28	—54	—19	—19	+2
Percentage Decrease...	24·0%	12·4%	20·6%	...	33·3%	33·3%	46%	30·4%	37·2%	10·6%	15·7%	...

HOSPITAL ADMISSION DEPOT; MEDICO-LEGAL SECTION, ETC.

REPORT OF THE GOVERNMENT MEDICAL OFFICER FOR SYDNEY FOR THE YEAR ENDED 31ST DECEMBER, 1939.

Medical Staff.

Dr. C. E. PERCY, Acting Government Medical Officer for Sydney; Dr. C. W. ENGLAND, Medical Officer; *Depot Assistants*, 3; *Night Officer*, 1.

MEDICAL WORK.

Arrangements of Admissions to Hospitals and Homes.—6,482 persons were admitted through the Depot to Metropolitan Hospitals, 8,854 to State Hospitals and Homes, 1,135 to Convalescent Homes, and admissions of country residents to Metropolitan and Base Hospitals were also arranged. Ambulance removals arranged by the Depot totalled 13,074.

Medical Examinations for State Government Departments.—1,041 were performed during the year, some persons being visited in their own homes.

Medical Examinations of Police Recruits.—751 recruits (probationary constables and police cadets) were examined, 187 being classed as fit at the first examination. 83 probationary constables were examined after 12 months' service.

Medical Examination of Sick Police.—Matters concerning the health of the Police Force are dealt with. The average daily number of police on sick report was 71.29.

MEDICO-LEGAL WORK.

Examination of Alleged Rape and Criminal Assault Cases.—132 examinations were made, exhibits concerning such cases were seen, and evidence was given at various courts.

Work for the Coroner's Court.—The Government Medical Officer performs post-mortem examinations at the City Morgue in connection with suicides, murders, violent and uncertified deaths.

Lunacy Work.—The Reception House at Darlinghurst is visited daily by a Medical Officer. 1,283 persons were certified as insane.

Vaccinations.—308 vaccinations were done for the Police Force and general public.

HEALTH EDUCATION AND PROPAGANDA.

REPORT BY THE PUBLICITY OFFICER FOR 1939.

Owing to a reduction in the vote for this purpose for 1939–40 as compared with the previous year, the carrying out of the Department's programme of health education had to be curtailed. This affected mainly the production of new health motion picture films, the printing and display of additional posters and show cards, the printing of more leaflets on health subjects, the purchase of additional display material for window displays, and supply of recorded broadcasts to broadcasting stations.

The 16 mm. sound motion picture projector and other equipment purchased early in 1939, has proved immensely popular as a means of entertaining and educating the people in health matters, and frequent screenings have been conducted both in the metropolitan area and in country towns. Such fixtures are generally remarkably well attended. A number of excellent 16 mm. sound films have been purchased, and these—together with several produced locally—represent the nucleus of a valuable film library which it is hoped to extend as funds permit. The use of health educational films is undoubtedly one of the most effective means of imparting instruction to the public on health matters.

Articles and reports continue to be issued to about 300 country and suburban papers each week, and have been widely used in these publications. This is another valuable medium of health education, as is also the radio which continues to be used as far as our limited funds and staff will allow. Our press articles would be made much more valuable and acceptable to newspaper editors if accompanied by blocks or stereos featuring appropriate illustrations, but shortage of funds has prevented the introduction of a scheme for circulating stereos in this manner. It is hoped to achieve this in the future.

Our posters and show cards are on display in Baby Health Centres, Colleges, and Schools, and Council Chambers, Town Halls, etc., and also in trains, trams, and on ferries. The co-operation of the Railway and Transport Departments and the Ferry Companies has proved of great value, and much useful propaganda has been secured by this means.

Excellent co-operation has also been secured from the Local Authorities throughout the State, which are organising Health Weeks, arranging meetings for the display of our motion pictures, displaying our posters, distributing our literature and otherwise helping us in this important work of educating the public in promoting and safeguarding their health.

The issue of new editions of the Department's valuable text book on Mothercraft and Child Welfare entitled " Our Babies " and other publications such as the Health Week Booklet have been continued during the year. By the 31st December, 1939, about 380,000 copies of " Our Babies " had been distributed to mothers free, while over half a million copies of the Health Week booklet and 100,000 copies of a booklet on " Safety and Health " had been similarly distributed. Another valuable booklet on pre-natal care entitled " Healthy Motherhood " and several other smaller pamphlets were also issued and widely distributed.

The new window display material purchased last year greatly improved the Department's Health Week window displays this year, and it is hoped to continue to improve the quantity and increase the number of our displays as opportunity offers.

A new poster on Diphtheria was issued to assist the Local Authorities in their immunisation campaigns, while screen slides, pamphlets and publicity matter, were also made available to them.

There can be no doubt that the cumulative effect of our health educational propaganda of the nature outlined above, over the past 14 years, has greatly increased the public's knowledge of health matters and raised the standard of health education throughout the State. There are many evidences that the public is gradually becoming more health conscious.

A. G. WHITE.

SECTION 1—C.

DIVISION OF MATERNAL AND BABY WELFARE.

REPORT FOR THE YEAR ENDED 31ST DECEMBER, 1939.

Director: GRACE J. CUTHBERT, M.B., CH.M., M.R.C.O.G.

PART I.—MATERNAL WELFARE.

PRE-NATAL CLINICS.

The work of the ten (10) Departmental clinics, established in 1930, has been most successful. The mothers attended are those who cannot afford private medical attention, who are confined in their own homes, or in a private hospital under the care of a midwife, or at one of the metropolitan obstetric hospitals. Attendances for 1939 have shown an increase of approximately 40 per cent. At three of these clinics during the last two years the Director has attended twice instead of once per month as formerly, and this is considered to be one of the fundamental reasons for the considerable improvement. Figures are shown :—

	Balmain.	Mascot.	Hurstville.
1937	135	96	130
1939	197	462	261

It is particularly gratifying that most of the mothers attend the clinics regularly. They come as requested at stated intervals, each being given a card on which the next date is entered, and it is rarely that this time is allowed to pass. A noticeable feature is the response to the request to return for a post natal examination six weeks after confinement. This is a valuable preventive measure; many organic and functional abnormalities, *e.g.*, retroversion, bad posture, etc., are corrected, and thus much major and minor disability is avoided.

The distribution of these clinics is such that the mothers living at a distance from the metropolitan obstetric hospitals are able to obtain regular supervision during their pregnancy. The public must learn that regular supervision is not only essential but readily obtainable, if a certain proportion of maternal deaths are to be avoided. This proportion, caused by neglect on the part of the mother in seeking supervision or her failure to attend regularly, should gradually be eliminated.

A new edition of the Departmental book, "Healthy Motherhood," was published in October. An alteration in the type, printing and format of the book has made it more attractive, easier to read and, in in this lay-out, emphasis has been made possible where desirable. The Director is indebted to Professor J. C. Windeyer and Dr. J. N. Chesterman for their collaboration in the information presented, and to Miss M. Moseley, A.M.A., C.S.M.M.G., for providing the accurate demonstration of the selected pre-natal and post-natal exercises which were photographed for reproduction. The book is available free of cost upon application to the Department of Public Health, medical practitioners are using it extensively for their patients. The constant increase in the demand for the book will contribute greatly to the education of the mothers and raise the standard of pre-natal care available.

Mothers attending the outpatients' department of the metropolitan obstetric hospitals use the book. Thus it is obvious that every avenue is exploited to encourage the mother to understand her serious obligation in seeking regular pre-natal care.

SCHEME FOR THE REDUCTION OF MATERNAL MORTALITY IN THE METROPOLITAN AREA.

This scheme came into effect at the beginning of 1939. In the confidential brochure issued to every medical practitioner it was pointed out that in seeking a consultant's advice no reflection is cast upon the skill of the medical practitioner. Instead it is an acknowledgment of the fact that teamwork is essential to the success of midwifery. The consultants named in the brochure were appointed by the obstetric teaching staff of the University in consultation with the Department of Public Health. Under this scheme these consultants consented to accept a reduced fee from the Department of Public Health for indigent patients who were unable to pay the whole or part of the usual fee.

Seven consultations were arranged during the year. This number is not effectively representative because it is known to the Director that at various times consultants on the State consultants' list have been summoned to a patient. The payment of a reduced fee according to the indigence of the patient has been acceptable, and in this way a consultant's advice has been sought without diffidence.

Eleven blood transfusions were given by the mobile unit from the Women's Hospital, Crown-street. Although this number is small, the general tendency to use blood transfusions has increased, and it can be assumed that in each of these eleven cases a mother's life was saved.

Little or no difficulty has occurred in the successful administration of this scheme to reduce maternal mortality. When required, the blood donors have arrived with celerity. The mobile transfusion unit with a medical officer, a specially trained nurse and apparatus, has been available with the least possible delay. The choice of consultant from the accredited list is made by the medical practitioner concerned and personal contact arranged.

The special medical committee for the investigation of all maternal deaths includes the Director-General of Public Health, the Professor of Obstetrics at the University of Sydney, the senior Honorary Medical Officer of each of the two student teaching hospitals, a general practitioner appointed by the British Medical Association, and the Director of Maternal and Baby Welfare. Six meetings of this committee have been held.

Control of Puerperal Sepsis.

The control of puerperal infection is effected by the administration of the Nurses' Registration Act (1934) in the regulations concerning the notification of puerperal pyrexia, of the Public Health Act (1902) in the regulations concerning the notification of infectious diseases, of the Private Hospitals Act (1908) in the regulations concerning fumigation and isolation. The regulations referring to puerperal infection in the Acts named in the first two instances are administered in conjunction with the Division of Maternal and Baby Welfare.

Under the Nurses' Registration Act, 157 cases of puerperal pyrexia were notified. In 68 the pyrexia was due to puerperal infection, that is, any inflammatory condition of the genital tract or its adnexa. In the remaining 89 cases the pyrexia was due to other causes.

All registered midwifery nurses are required to notify any case of puerperal pyrexia occurring in their practice, and at the same time to state the provisional diagnosis made by the medical practitioner in charge of the case. If this pyrexia is stated to be due to puerperal infection, a routine bacteriological examination is arranged. This procedure was established as a result of the increased knowledge of the nature and sources of such infection, and a leaflet for practical guidance was sent to every registered midwifery nurse in New South Wales this year.

The regulations prohibit a nurse attending a case of puerperal infection from nursing any other case.

The Group A Haemolytic Streptococcus is a highly infectious and dangerous organism, and the object of these investigations is to make sure that it is not the cause of the patient's pyrexia.

Cross infection from a patient with mild pyrexia, even as low as 99°, may cause a virulent infection in the person next infected. It is to protect the mother from these possibilities of cross infection, which might cause fatal results, that these measures are taken.

During the year successful legal action was taken against a private hospital which failed to comply with the regulations of the Nurses' Registration Act and the Private Hospitals Act. The patient concerned died from a puerperal infection caused by the Haemolytic Streptococcus Group A. The source of infection was considered to be one of the attendant nurses, but the delay in investigation caused by non-compliance with the regulations made conclusive proof impossible.

Puerperal infection as defined above is a notifiable disease under the Public Health Act; it includes not only frank septicaemia, but also sapraemia, parametritis, cervicitis, pelvis peritonitis, etc. These may be caused by other groups of haemolytic streptocci and other virulent organisms. While such infections may be serious and even fatal, and are treated as infectious diseases, there is no comparison between the high infectivity of these cases and those due to Group A Haemolytic Streptococci which may be conveyed from the nose and throat of anyone suffering from recent infection or even by healthy carriers. It is, therefore, important at all times to ascertain the presence of the Group A Haemolytic Streptococcus.

It is recognised that many cases of puerperal infection follow a perfectly normal confinement, and consequently no measures taken to protect the patient against such infection should be neglected.

Under a grant from the National Health and Medical Research Council a full investigation of all cases of infection by the Group A Haemolytic Streptococcus occurring within the metropolitan area was made at the Women's Hospital, Crown-street. Outside the metropolitan area it was only possible to seek the source of infection in attendants. During the year two nurses were suspended from duty under these regulations in districts outside the metropolitan area.

Two hundred and forty-six cases of puerperal infection were notified under the Public Health Act, 81 after a full term confinement and 165 after abortion and miscarriage. These figures are of little value at present since it has not been customary for the metropolitan obstetric hospitals to forward their figures. In the future these will be available.

Physio-therapy in Pregnancy and the Puerperium.

The sound film, "Physio-Therapy in Pregnancy and The Puerperium," which was completed in 1938, has been shown to medical students, obstetric nurses, women delegates of organisations attached to the National Fitness Campaign, and other interested audiences, including members of the medical profession visiting Sydney. A copy of the film was bought by the Professor of Obstetrics of the University of Melbourne.

Post-natal exercises performed to music in the wards under the guidance of qualified experts have become a routine at the Royal Hospital for Women and the Royal North Shore Hospital, and classes in pre-natal work have also been established at the former. Steps have been taken to establish a similar procedure at the Women's Hospital in pre-natal work and post-natal work.

The book recently published in England, "Training for Childbirth—Obstetrics from The Mother's Point of View," has been invaluable to masseuses undertaking this work. Its adequate descriptions and varied photographic reproductions have made an effective contribution to the work. This textbook alone provides the medical practitioner, midwife and masseuse with discussions and descriptions of the routine of exercises based on physiology and anatomy, which form the basis of sound principles of physio-therapy in obstetric practice. It is written by Miss M. Randall, the Chief of the Physio-Therapy Staff at St. Thomas' Hospital, in collaboration with Miss Barbara Thomas, who gave her honorary services to the Department of Public Health in production of the sound film while she was in Sydney in 1938.

A detailed and confidential questionnaire has been devised in order to obtain a clinical picture and an accurate case history. The regularity and type of pre-natal care and the complications and emergencies of labour are included. On receipt of the notification of death from the local authority this is sent to the medical practitioner who had charge of the case. Supervisory Nurses from the Department of Public Health visit the home of the patient to seek information concerning home and economic conditions and other pertinent data; they also visit private hospitals when required. Subsequent to discussion by the special committee, if necessary, communication is again sought with the medical practitioner concerned. In this manner an effort is made to assess accurately the avoidable factors and responsibility for same. Except on one or two occasions splendid co-operation has been extended to the committee by doctors and hospitals; all matters receive confidential treatment.

It is not possible to give figures for the assessments made by the special committee this year since notifications are only received by the Department after some unavoidable delay in transmission.

In the assessment of any immediate results of this scheme several facts extracted from vital statistics are a valuable commentary on its success. The maternal mortality rate per 1,000 live births, excluding criminal abortions, was 3·4. This figure is the lowest on record and it may be assumed that this represents in part the effectiveness of the scheme inaugurated in this year. See Table I.

VITAL STATISTICS.

A.—MATERNAL MORTALITY.

TABLE I.—Puerperal Deaths—International Classification.

Year.	Live Births.	Deaths from Puerperal Causes, excluding Criminal Abortions.	Maternal Mortality Rate per 1,000 Live Births, excluding Criminal Abortions.
1927	53,858	306	5·7
1928	54,800	295	5·4
1929	52,672	245	4·7
1930	52,136	260	5·0
1931	47,724	243	5·1
1932	44,905	226	5·0
1933	44,195	212	4·8
1934	43,335	214	4·9
1935	44,676	230	5·1
1936	46,193	236	5·1
1937	47,497	198	4·2
1938	47,319	181	3·8
1939	48,003	162	3·4

TABLE II.—Relative Extent of Puerperal Deaths, N.S.W.

Year.	Deaths from Criminal Abortion.				Total Puerperal Deaths (including Criminal Abortion).			
	All Ages.		Ages 15–44 Years.		All Ages.		Ages 15–44 Years.	
	Number.	Proportion per cent. of Female Deaths at All Ages.	Number.	Proportion per cent. of Female Deaths at Ages 15–44 Years.	Number.	Proportion per cent. of Female Deaths at All Ages.	Number.	Proportion per cent. of Female Deaths at Ages 15–44 Years.
1935	52	·49	51	3·02	282	2·65	280	16·56
1936	56	·52	56	3·30	292	2·71	288	16·97
1937	35	·32	35	2·22	233	2·14	233	14·75
1938	50	·44	50	3·09	231	2·03	228	14·07
1939	38	·32	38	2·53	200	1·71	199	13·24

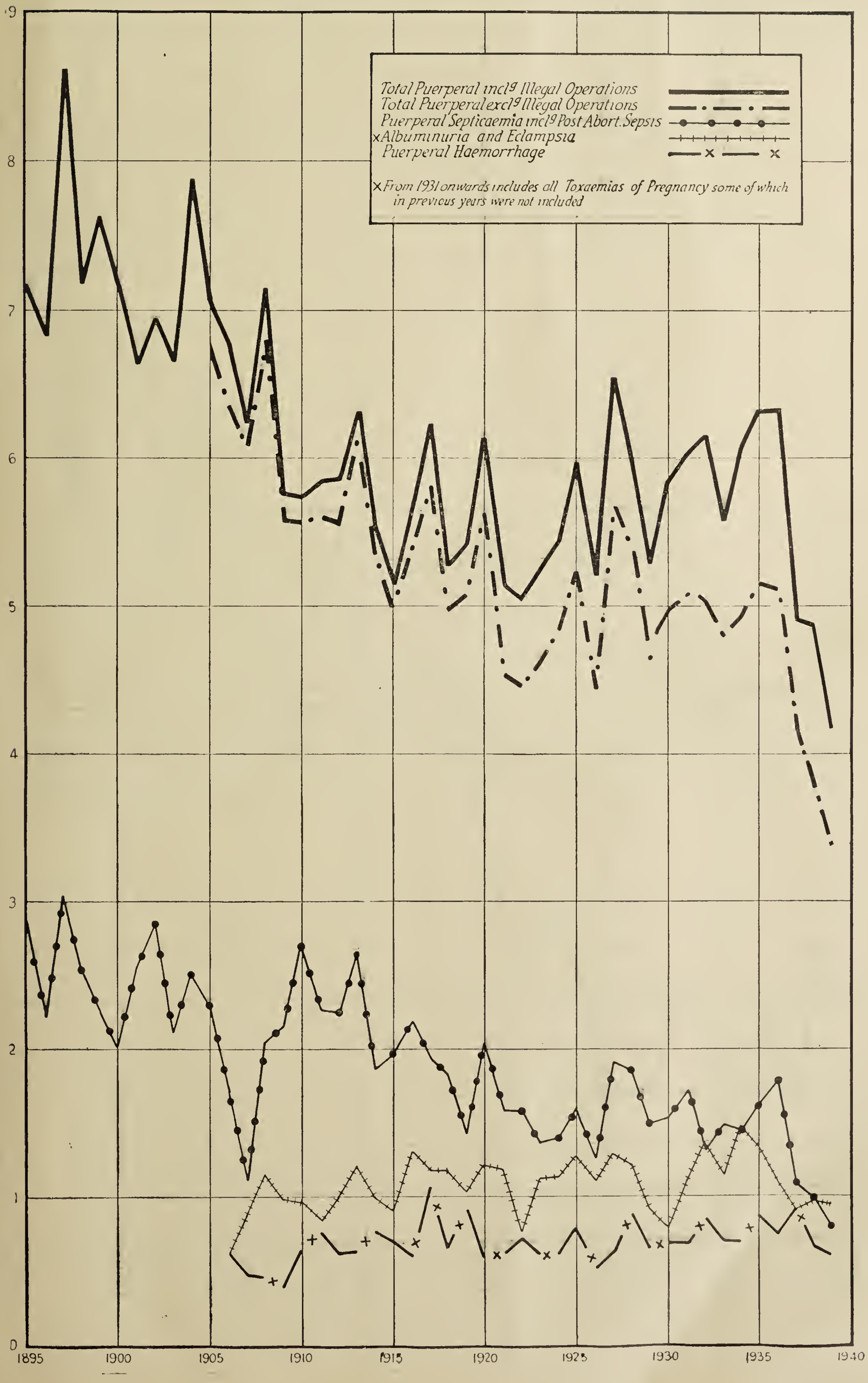
TABLE III.—New South Wales—Deaths Incidental to Childbirth, 1932–1939.

Causes.	1932.		1933.		1934.		1935.		1936.		1937.		1938.		1939.	
	No.	Rate per 1,000 Live Births.	No.	Rate per 1,000 Live Births.	No.	Rate per 1,000 Live Births.	No.	Rate per 1,000 Live Births.	No.	Rate per 1,000 Live Births.	No.	Rate per 1,000 Live Births.	No.	Rate per 1,000 Live Births.	No.	Rate per 1,000 Live Births.
Accidents of Pregnancy	24	·53	26	·59	20	·46	13	·29	25	·54	27	·57	18	·38	16	·33
Puerperal Haemorrhage	39	·87	31	·70	30	·69	39	·87	34	·74	43	·91	31	·66	29	·61
Puerperal Septicaemia	26	·58	34	·77	39	·90	44	·99	45	·98	25	·52	38	·80	24	·50
,, ,, following Abortion or Miscarriage	33	·73	32	·73	24	·55	28	·63	37	·80	27	·57	9	·19	14	·29
Albuminuria and Eclampsia	61	1·36	51	1·15	64	1·48	60	1·34	51	1·10	43	·90	46	·97	45	·94
Phlegmasia Alba Dolens, Puerperal Embolism, Sudden Death	16	·36	16	·36	11	·26	21	·47	21	·45	16	·34	19	·40	11	·23
Other Casualties of Childbirth	27	·60	22	·50	26	·60	25	·56	23	·50	17	·36	20	·42	23	·48
Total	226	5·03	212	4·80	214	4·94	230	5·15	236	5·11	198	4·17	181	3·82	162	3·38
Criminal Abortions	50	1·11	34	·77	49	1·13	52	1·16	56	1·21	35	·74	50	1·06	38	·79
Grand Total	276	6·14	246	5·57	263	6·07	282	6·31	292	6·32	233	4·91	231	4·88	200	4·17

GRAPH No. 12

DEATHS DUE TO PUERPERAL CONDITION, NEW SOUTH WALES.

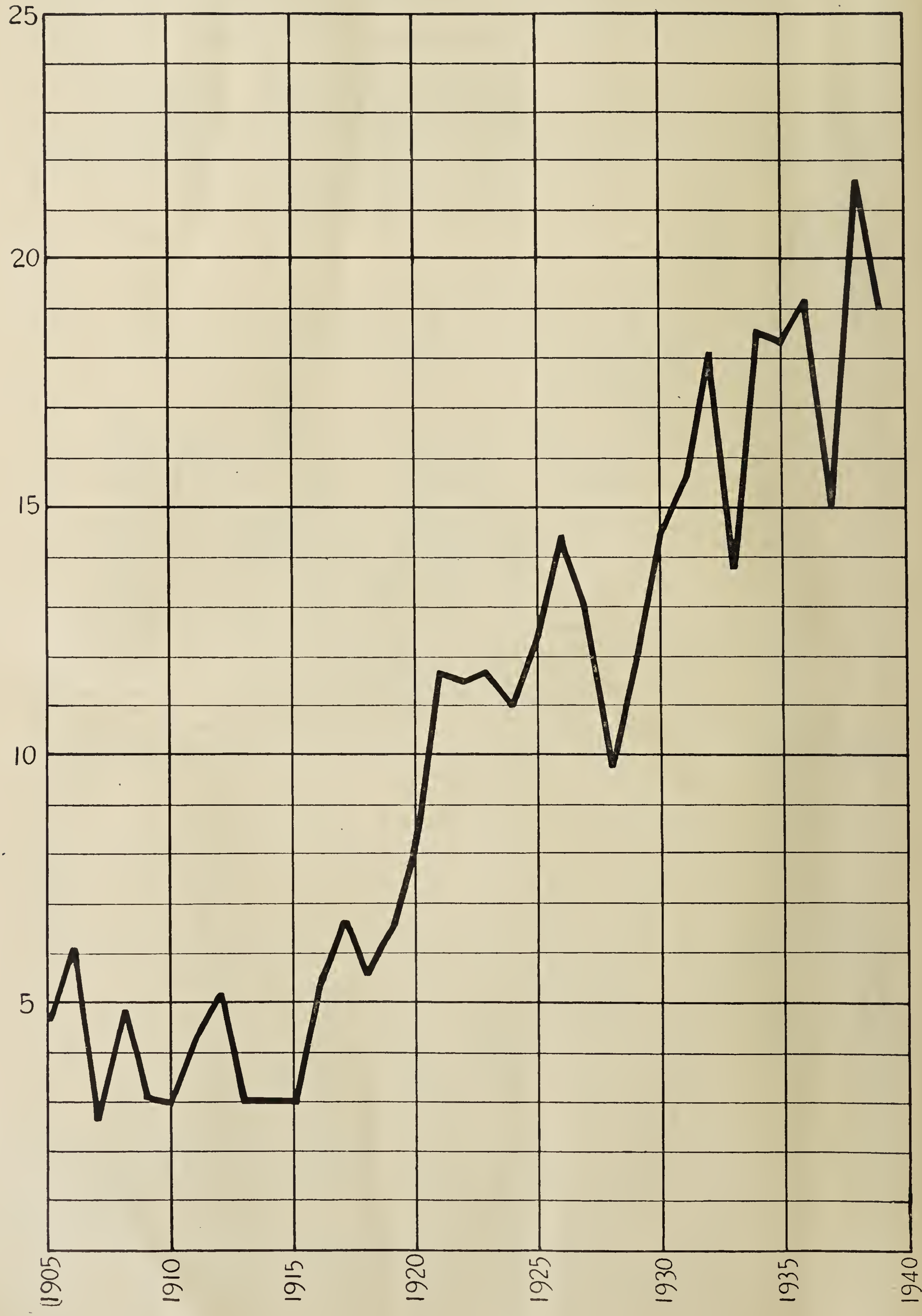
Death Rates from Certain Causes per 1,000 Live Births for the Years 1895-1939.



GRAPH No. 13.

MATERNAL MORTALITY.

Deaths from Criminal Abortions as percentage of total Maternal Deaths in N.S.W., 1905-1939



VITAL STATISTICS.

As already mentioned, the maternal mortality rate (excluding criminal abortions) is the lowest recorded for New South Wales, *i.e.*, 3·4 per 1,000 live births. See table I, page 48.

Deaths from criminal abortion, although slightly less than last year, still cause 2·53 per cent. of female deaths between the ages of 15 and 44 years. This figure indicates the serious toll taken of women in the child-bearing years in this State, but in no way indicates the equally serious destruction of women's health through abortion and septic abortion. In the metropolitan area the percentage of female deaths between 15 and 44 years due to criminal abortions was 3·75. In the remainder of the State it was 1·14. Obviously this is a problem of grave import to the cities.

It is urgent that the public should be aware of the serious menace to life and health caused by the enormous number of abortions and abortal sepsis as well as the morbidity and sterility occasioned by them. In two hospitals alone in the metropolitan area more than 1,000 cases of abortion, septic or otherwise, are admitted per annum. While the maternal mortality rate from criminal abortions represents 0·79 per 1,000 live births, showing a decrease from last year, the post-abortal sepsis is 0·29, an increase on last year.

Women must understand that the artificial or accidental termination of pregnancy by whatever means, mechanical, instrumental, or drugs, is accompanied by grave danger. Last year 52 women died, 38 from criminal abortion, an entirely preventible cause, and 14 from abortal sepsis, a cause which might have been prevented if treatment had been immediately obtained. Graph No. 13 indicates the enormously increased problem of criminal abortion since 1915.

For an examination of the various causes of deaths incidental to childbirth under the headings of international classification, see table III, page 48, and Graph 12, page 49.

The relative extent of puerperal deaths in the child-bearing years (15 to 44) is indicated in Table 2, page 48. 13·24 per cent. of deaths of women from all causes in the child-bearing years were due to puerperal causes. Of these, 2·53 per cent. were due to criminal abortion.

It is noted that the chief causes of death in New South Wales are (1) criminal abortion and post-abortal sepsis; (2) albuminuria and eclampsia. The incidence of the former varies greatly in the city and country as already noted, and for the latter the incidence is similar.

There was a further decrease in the occurrence of death from puerperal haemorrhage last year. It may be assumed that this improvement results from the recognition of blood transfusion as an essential treatment, and that such treatment should be taken to the patient and not *vice-versa.* Investigation has shown that of the women who die from puerperal haemorrhage many are sent to hospital whilst bleeding severely; others are sent when bleeding has stopped, but are then in an ex-sanguinated condition and practically moribund. Such patients should be treated where the haemorrhage occurs and not moved until its effects have passed.

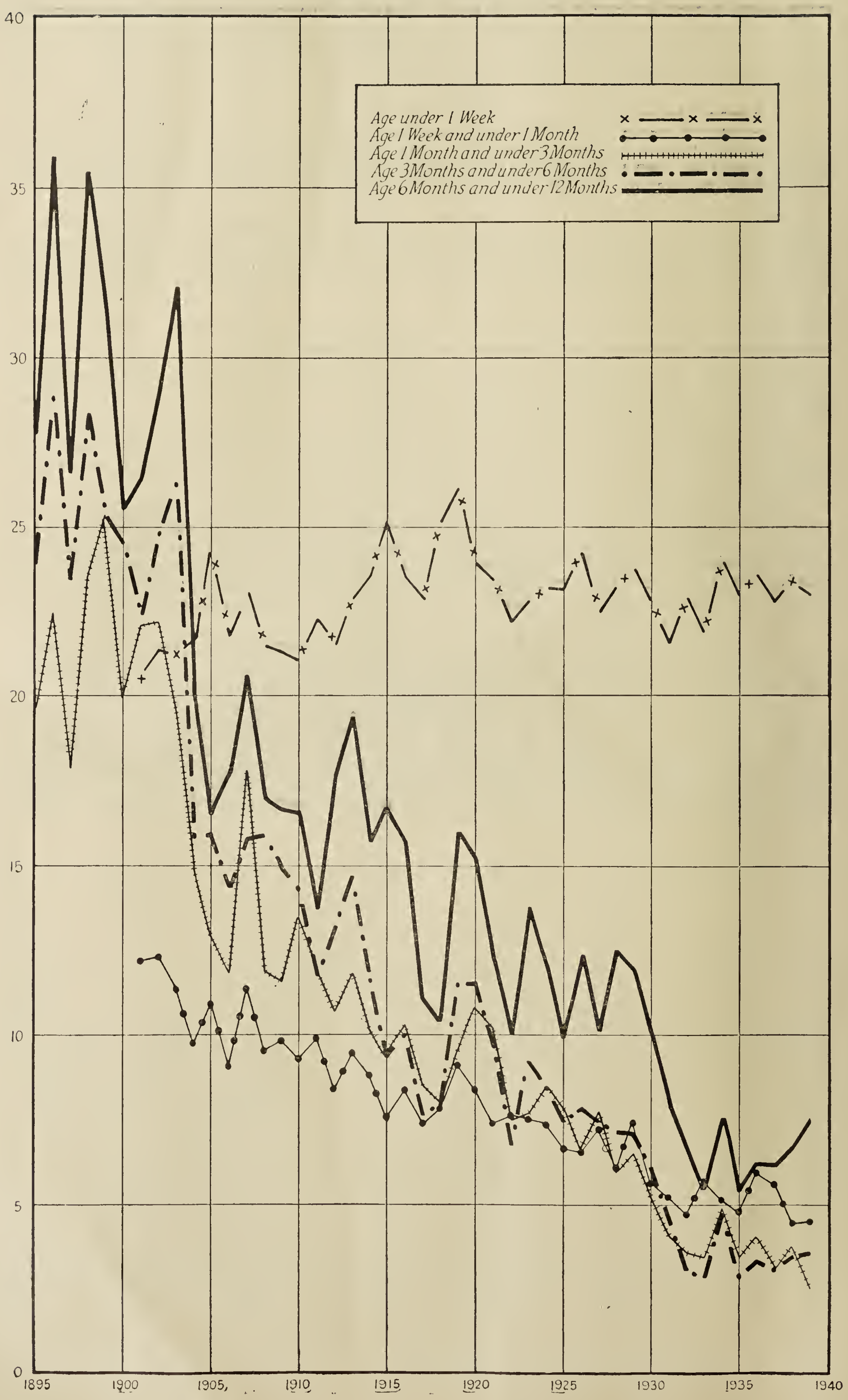
The mobile blood transfusion unit makes this possible in the metropolitan area. It is a service available twenty-four hours of the day at the request of the medical practitioner in charge of an obstetric case. The reduction is from 0·66 per cent. per 1,000 live births in 1938 to 0·61 per cent. in 1939.

Deaths from puerperal sepsis are the lowest ever recorded—0·5 per 1,000. This improvement is attributable to (1) the early administration of sulphanilamide; (2) the measures taken against the possible spread of infection by the regulations of the various Acts administered under the Department of Public Health, and (3) to the greater knowledge of the high infectivity and sources of infection of the haemolytic streptococcus in midwifery practice. These measures have already been described. The decrease in the death rate from puerperal sepsis is also attributed by some scientific authorities to the attenuated virulence of the streptococcus.

GRAPH No. 14.

INFANTILE MORTALITY, NEW SOUTH WALES.

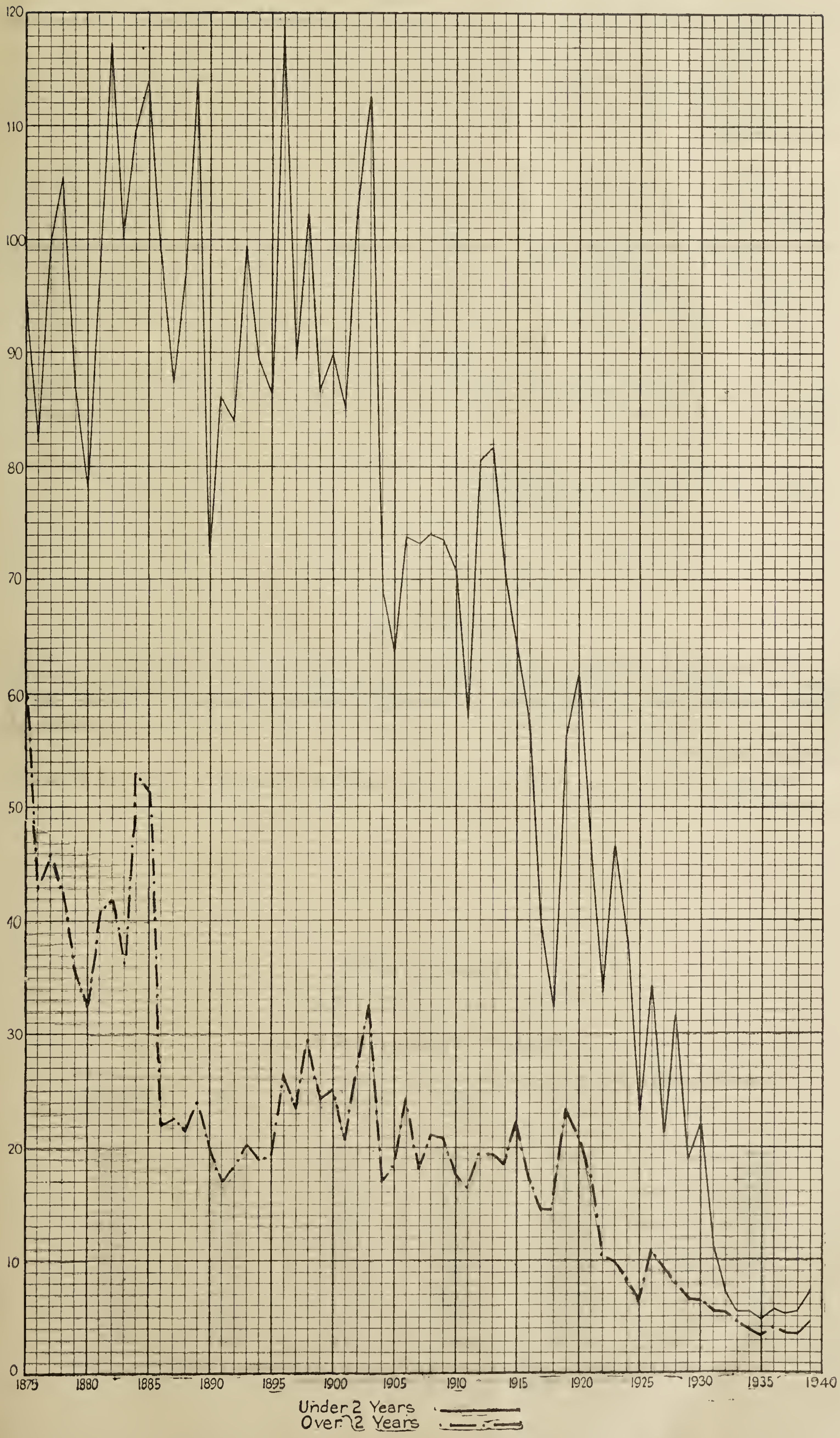
In Age Periods under 1 Year, from 1895 to 1939.



GRAPH No. 15.

DIARRHOEA AND ENTERITIS.

Annual Death Rate per 100,000 of the Population in New South Wales, 1875-1939.



PART II.—INFANT WELFARE.

BABY HEALTH CENTRES.

There are now 211 Baby Health Centres in New South Wales, 11 new centres being opened during 1939. Eighteen additional appointments were made to the nursing staff, the personnel now numbering 189.

Attendances for the year were 852,422, showing an increase of approximately 8 per cent. in twelve months. The details of this service are listed alphabetically in two groups : (*a*) metropolitan; (*b*) country. Inability to provide suitable premises and equipment, which are essential before any appointment of nurses can be considered by this Department, prevented the needs of those in the metropolitan area receiving adequate attention.

The work of the Baby Health Centres has been performed by the Nursing Staff with its customary interest, efficiency and enthusiasm. The Nurse Inspector, Miss Lucy Spencer, relinquished her duties last September to be married. Since 1912 her work has been done so capably and with such tact and ability in dealing with community problems that, in some measure, the expansion of the services in the Baby Health Centres can be attributed to her. During the years of her service she has been ably supported by Assistant Nurse Inspector, Miss Williams, and their teamwork has been responsible for the efficient administration of the Baby Health Centres. Miss Spencer's retirement dissolves a fine partnership. The wide experience in mothercraft work of Miss Williams, coupled with her knowledge of the personnel of the staff, will insure the maintenance of the high standards of staff work in the Baby Health Centres. Every good wish is extended to the Acting Assistant Nurse Inspector, Miss Jones.

No staff lectures have been given since May, as suitable accommodation was not available. Post graduate courses have been temporarily suspended during the construction of a new wing at the Tresillian Mothercraft School at Vaucluse. All members of the nursing staff of the Baby Health Centres must hold a Tresillian certificate.

In maintaining and expanding the three Tresillian Mothercraft Training Schools the Royal Society provides for high standards in mothercraft work.

PRE-SCHOOL CHILD.

The zone charts produced by courtesy of Dr. Clements, the Director of the Institute of Anatomy, Canberra, are now in use. These have proved to be of great benefit in recording the history of the child's progress and in impressing upon the mother the necessity of continued supervision to the school age.

Extensive investigation has continued to emphasise the need for suitable advice on nutrition and management in these years.

The Nursing Staff has been greatly encouraged by the automatic expansion of this work for mothers under their care.

VITAL STATISTICS.

B.—BIRTHS AND BIRTH RATES.

TABLE IV.—Births and Birth Rate.

Year.	Total Births.	Live Births.	Live Birth Rate per 1,000	Still Births.	Still Births per cent. of Total.
1927	55,524	53,858	22·40	1,666*	3·00*
1928	56,495	54,800	22·27	1,695*	3·00*
1929	54,301	52,672	21·04	1,629*	3·00*
1930	53,748	52,136	20·59	1,612*	3·00*
1931	49,200	47,724	18·67	1,476*	3·00*
1932	46,294	44,905	17·41	1,389*	3·00*
1933	45,562	44,195	16·98	1,367*	3·00*
1934	44,675	43,335	16·52	1,340*	3·00*
1935	46,077	44,676	16·89	1,401	3·04
1936	47,612	46,193	17·31	1,419	2·98
1937	48,949	47,497	17·63	1,452	2·97
1938	48,792	47,319	17·39	1,473	3·02
1939	49,363	48,003	17·46	1,360	2·76

* Estimated at 3 per cent. of total births (live and still).

TABLE V.—Births and Infantile Mortality—Comparative Statistics for the Metropolitan Area and Remainder of State.

Year.	Births.				Deaths Under 1 Year of Age.	
	Total births.	Live Births.		Number of still births.	Number.	Rate per 1,000 live births.
		Number.	Rate per 1,000 of Population.			
METROPOLITAN AREA.						
1936	18,341	17,759	14·11	582	741	41·73
1937	18,748	18,158	14·28	590	703	38·72
1938	19,150	18,559	14·48	591	714	38·47
1939	19,885	19,323	14·93	562	663	34·31
REMAINDER OF STATE.						
1936	29,271	28,434	20·18	837	1,267	44·56
1937	30,201	29,339	20·62	862	1,229	41·89
1938	29,642	28,760	19·98	882	1,266	44·02
1939	29,478	28,680	19·71	798	1,306	45·54

Since 1900 the general Infant Mortality Rate has been more than halved. Relatively, there has been little improvement in the mortality rate during the first month, still less during the first week of life. Graph No. 14 aptly demonstrated this fact. In 1938 the Commonwealth Infant Mortality was 41·02 per 1,000 births, the rate for infants under one week of age was 22·96. Thus slightly more than half of the total deaths occurred during the first week.

A thorough investigation of the causes into this waste of infant life and maternal effort is necessary Only a very small percentage of these deaths are due to congenital abnormalities; it is possible that many of the remainder are preventible. Statistics as to the cause of death when no post-mortem is carried out are unreliable, and a complete investigation of every still and neo-natal death would provide much valuable information. In other parts of the world it has been found possible to examine post-mortem as many as 88 per cent. of these infants, and from the information gained it has been found possible to lower the persistently high death rate in infants during the first week of life.

Research in this field was begun in 1939 at the Women's Hospital, Crown-street, under a grant from the King George V Memorial Fund.

These investigations include those into the histology of bone-marrow and other tissues in infants with erythroblastosis and in the foetus at various stages of development; and investigation of family histories. Blood counts of pregnant women have also been investigated.

Table VI—Showing the attendance of mothers, and work performed at Baby Health Centres throughout the Metropolitan Area during the years 1937, 1938, 1939 :—

Metropolitan Centres.	Visits to individual Newborn Babies.			Subsequent visits to homes of Babies.			Total Attendances.			Individual Attendances.			Test Meals.	Expectant Mothers Advised.	New cases Enrolled.
	1937.	1938.	1939.	1937.	1938.	1939.	1937.	1938.	1939.	1937.	1938.	1939.	1939.	1939.	1939.
Alexandria	204	179	241	1,268	1,179	1,269	9,217	9,257	8,406	733	727	727	265	142	278
Annandale	99	213	178	312	344	412	5.134	5,595	5,711	470	546	550	234	49	245
Ashfield	240	256	277	343	424	357	13,079	16,292	16,713	1,105	1,173	1,095	946	108	439
Auburn	216	230	231	364	544	762	8,409	8,440	9,405	685	707	772	371	34	306
Balmain	312	274	319	846	448	891	11,139	9,811	10,420	871	803	931	441	49	385
Bankstown	232	277	206	621	790	592	7,017	6,920	7,488	522	533	527	355	85	363
Bexley	...	...	33	...	...	51	...	965	3,613	...	26	260	67	6	95
Burwood	357	281	343	378	385	385	15,508	16,384	15,656	1,435	1,449	1,388	1,004	125	563
Campsie	419	371	436	544	437	494	19,832	20,399	19,888	1,677	1,656	1,600	661	54	620
Chatswood	274	241	250	469	256	344	11,571	10,824	11,894	986	850	1,035	733	86	426
Chippendale	238	240	224	506	609	617	4,598	4,845	4,345	450	440	415	133	52	136
Cronulla	...	...	18	...	...	42	...	...	1,599	...	...	179	55	17	58
Daceyville	361	420	382	808	887	778	12,083	13,276	14,858	1,000	1,105	1,220	422	72	463
Dee Why	73	48	79	171	181	265	3,645	4,415	5,623	369	446	523	227	37	138
Drummoyne	...	...	16	...	...	45	...	...	409	...	...	83	5	2	27
Earlwood	182	155	199	700	686	1,510	8,824	8,718	10,071	447	563	920	173	86	301
Eastwood	...	65	114	...	188	150	5,120	6,202	7,871	306	509	607	273	76	181
Five Dock	284	230	286	436	591	701	10,894	12,289	11,039	749	853	941	574	68	357
Gladesville	112	113	181	316	502	616	5,584	8,266	9,939	550	588	765	302	74	310
Glebe	173	156	162	1,349	1,155	1,262	6,358	7,369	7,513	518	362	491	188	62	228
Granville	369	271	320	367	467	500	7,905	7,259	8,015	1.053	803	820	398	54	339
Homebush	115	137	133	337	265	302	5,084	5,524	6,386	391	436	504	278	97	233
Hornsby	144	143	128	254	224	152	6,526	7,000	7,617	300	320	320	343	149	322
Hurstville	365	412	496	683	558	1,033	15,278	15,616	17,430	1,272	1,311	1,546	627	94	562
Kogarah	234	237	282	508	458	382	9,890	10,527	12,178	717	582	930	453	36	425
Lakemba	...	...	278	...	...	201	...	...	2,280	...	...	321	92	28	99
Lane Cove	158	141	166	894	646	614	9,176	9,930	11,099	759	890	935	557	56	280
Leichhardt	523	372	367	831	537	773	10,891	10,914	10,567	751	757	825	594	67	412
Lidcombe	142	147	137	297	578	542	4,198	4,475	5,497	348	346	326	507	62	164
Lindfield	...	58	35	...	259	145	5,168	7,053	8,762	429	478	664	621	66	269
Liverpool	...	...	375	...	...	19	3,368	3,687	3,944	404	440	502	139	35	217
Manly	150	771	202	489	486	924	15,283	13,644	14,628	1,442	1,094	770	613	115	362
Marrickville	365	328	367	923	647	613	11,549	11,952	11,261	973	1,015	777	376	88	356
Mascot	226	201	204	472	502	433	8,034	7,609	8,775	867	743	780	320	58	291
Millers Point	31	38	30	277	277	290	1,477	1,273	1,270	90	116	120	37	17	54

TABLE VI—*continued.*

Metropolitan Centres.	Visits to individual Newborn Babies.			Subsequent visits to homes of Babies.			Total Attendances.			Individual Attendances.			Test Meals.	Expectant Mothers Advised.	New cases Enrolled.
	1937.	1938.	1939.	1937.	1938.	1939.	1937.	1938.	1939.	1937.	1938.	1939.	1939.	1939.	1939.
Mortdale	...	...	106	...	...	160	2,645	3,037	3,455	212	248	253	93	26	126
Mosman	216	220	238	845	789	590	10,109	13,666	14,299	891	901	999	757	130	410
Newtown	422	409	358	1,013	1,019	1,172	13,863	12,030	14,090	1,261	944	848	597	45	499
Northbridge	37	27	33	46	37	48	1,781	1,876	2,698	122	128	134	22	8	53
North Sydney	493	444	494	692	671	751	11,625	12,470	14,551	1,025	1,132	1,220	499	69	545
Paddington	265	254	282	1,015	297	854	13,058	13,676	13,691	1,017	977	1,113	432	212	341
Parramatta	218	209	221	458	412	425	13,010	13,773	15,830	1,188	1,413	1,685	836	217	682
Pennant Hills	...	...	...	...	...	...	814	941	1,051	35	50	33	35	18	40
Petersham	207	215	196	309	212	181	10,954	10,941	9,886	1,077	1,114	1,050	776	40	416
Punchbowl	...	...	...	...	...	...	3,086	3,141	4,156	221	221	239	...	15	153
Pyrmont	54	60	62	292	318	373	1,908	1,495	1,942	132	150	122	46	13	81
Randwick	185	249	281	339	286	294	13,623	13,946	14,322	1,197	405	1,154	366	116	555
Rockdale	246	248	257	375	356	376	15,373	16,398	15,626	1,174	1,234	1,111	540	97	451
Rose Bay	418	429	504	654	998	1,188	16,238	15,822	17,882	1,431	1,416	1,416	1,358	81	596
Ryde	80	157	119	230	300	385	9,419	10,654	11,191	615	680	786	512	154	276
St. Peters	183	156	147	845	636	567	2,858	2,657	2,750	285	249	256	76	18	125
Surry Hills	204	161	177	949	723	1,239	8,554	8,572	9,285	700	769	881	426	79	291
Sutherland	47	56	58	178	138	110	2,658	2,898	3,246	237	274	235	116	12	140
Waverley	367	109	90	1,034	999	404	20,148	20,947	22,805	1,765	1,934	1,918	1,110	100	632
Willoughby	...	...	...	...	...	...	...	976	2,221	...	88	170	19	9	61
Woolloomooloo	231	242	287	1,121	1,176	1,069	8,963	8,453	9,106	437	455	517	583	45	252
Total Metropolitan	10,471	10,650	11,405	26,158	24,877	28,652	452,526	475,099	516,253	37,691	37,449	41,309	22,583	3,810	17,029

Table VII—Showing the attendance of mothers and work performed at Baby Health Centres throughout Newcastle, Broken Hill and Country Districts during the years 1937, 1938, 1939:—

Country Centres.	Visits to Individual Newborn Babies.			Subsequent visits to homes of Babies.			Total Attendances.			Individual Attendances.			Test Meals.	Expectant Mothers Advised.	New cases Enrolled.
	1937.	1938.	1939.	1937.	1938.	1939.	1937.	1938.	1939.	1937.	1938.	1939.	1939.	1939.	1939.
Abermain	19	28	17	44	31	68	1,107	1,194	1,178	87	85	94	23	4	34
Adamstown	44	53	80	73	220	245	5,009	5,575	6,059	423	473	558	334	87	191
Adelong	...	...	...	...	...	...	927	901	754	60	61	74	10	22	29
Albury	117	109	141	767	641	508	6,111	6,373	6,062	630	405	348	359	147	196
Ardlethan	5	1	...	8	...	...	280	267	274	28	21	37	15	3	20
Ariah Park	15	12	9	48	23	16	351	297	261	45	38	43	10	...	18
Armidale	127	115	118	1,309	1,200	1,271	3,280	3,907	3,640	349	376	410	257	73	227
Ballina	...	...	...	...	...	...	...	153	752	...	19	172	75	29	58
Barellan	13	12	10	15	9	17	265	243	255	50	45	30	2	...	11
Bathurst	75	66	95	178	189	493	5,228	4,263	4,416	520	363	493	270	39	264
Berrima	5	6	8	4	10	22	187	159	201	20	20	21	10	6	12
Binalong	...	8	5	...	60	65	...	158	196	...	22	20	4	...	10
Blackheath	17	16	10	132	125	38	858	948	847	84	100	100	35	6	19
Blayney	...	...	...	...	...	...	...	...	404	...	...	47	18	6	47
Boggabri	...	2	...	...	...	...	755	913	906	62	72	43	48	...	26
Bombala	5	...	...	9	...	...	443	450	418	59	73	77	19	4	32
Boorowa	...	36	57	...	313	363	...	478	719	...	58	73	65	12	55
Bowning	...	2	8	...	30	59	...	92	136	...	16	20	4	...	12
Bowral	37	41	38	301	245	139	1,335	1,289	1,172	114	99	108	34	24	48
Broken Hill Central	156	129	95	736	629	477	6,291	7,126	8,757	342	470	549	218	64	300
Broken Hill North	40	58	46	220	206	295	4,605	4,712	4,993	307	359	369	111	39	143
Broken Hill Railway Town	20	41	25	363	256	331	3,663	4,278	4,322	348	263	298	83	58	97
Broken Hill South	29	31	29	356	374	236	3,113	2,423	3,198	205	205	271	74	25	76
Bulli	7	62	72	6	76	113	2,149	1,725	2,193	225	209	231	182	6	122
Bundanoon	...	7	3	...	14	10	194	246	224	30	25	21	8	5	11
Bungendore	9	8	8	33	39	48	408	457	628	51	59	76	3	24	37
Campbelltown	...	...	...	...	...	...	...	...	115	...	...	39	6	...	9
Camden	...	...	...	...	...	...	...	362	1,092	...	80	139	122	21	64
Canowindra	...	5	14	...	17	24	...	416	1,110	...	55	87	49	12	39
Carrington	...	...	...	...	...	...	1,052	716	1,303	91	93	92	2	4	35
Cardiff	...	...	...	...	...	...	...	...	1,777	...	...	206	79	25	66
Casino	82	80	67	340	213	119	3,624	3,623	3,802	366	384	412	195	34	160
Cessnock	229	227	221	431	467	498	6,139	6,905	6,969	495	578	626	320	84	262
Coolamon	30	23	37	51	101	200	401	755	803	44	54	61	26	19	27
Cooma	92	65	37	431	397	433	1,855	1,781	1,810	225	210	220	106	23	90
Cootamundra	83	100	61	339	257	222	3,196	2,920	3,445	227	214	278	147	43	117
Corowa	50	22	35	467	492	413	2,323	2,038	1,769	209	163	120	101	33	56
Cowra	65	78	78	277	286	223	2,238	2,456	3,202	209	205	285	218	26	111
Crookwell	44	31	28	101	117	84	469	588	512	68	80	86	16	...	39
Culcairn	21	17	11	27	48	46	324	367	503	33	57	61	28	2	28

TABLE VII—*continued.*

Country Centres.	Visits to individual Newborn Babies.			Subsequent visits to homes of Babies.			Total Attendances.			Individual Attendances.			Test Meals.	Expectant Mothers Advised.	New cases Enrolled.
	1937.	1938.	1939.	1937.	1938.	1939.	1937.	1938.	1939.	1937.	1938.	1939.	1939.	1939.	1939.
Deniliquin	91	49	40	650	495	262	2,461	2,566	2,151	140	166	146	173	31	66
Denman	...	8	10	...	30	74	...	304	598	...	41	40	21	5	15
Dora Creek	...	...	...	...	...	...	181	247	280	37	40	43	2	...	29
Dubbo	156	162	137	794	768	697	4,235	4,925	5,011	343	398	440	335	41	193
Eumungerie	...	...	...	...	...	...	153	126	199	16	15	23	7	...	10
Finley	...	...	8	...	...	25	...	...	127	...	...	30	7	...	13
Forbes	99	98	66	188	146	170	2,066	2,172	2,388	192	217	230	243	12	100
Frogmore	...	3	13	...	11	41	...	72	71	...	71	10	3	3	4
Galong	...	2	4	...	17	60	...	129	48	...	12	8	1	...	2
Ganmain	...	12	29	...	21	110	...	39	227	...	14	45	14	6	23
Geurie	3	8	10	40	47	46	389	427	385	38	37	40	17	16	17
Gilgandra	42	53	36	114	139	124	613	529	793	65	64	66	53	16	39
Glen Innes	95	72	71	202	193	192	2,264	2,426	2,508	182	218	205	129	34	110
Goolgowie	...	...	...	...	...	...	135	130	67	27	27	19	1	...	5
Gosford	78	45	35	82	44	41	2,825	3,479	3,382	303	379	347	97	9	229
Goulburn	221	181	189	584	806	826	7,528	7,927	6,527	773	764	752	330	32	259
Grafton	159	114	144	191	137	167	5,179	5,545	6,007	614	722	716	282	34	262
Gresford	...	...	...	...	...	...	...	...	155	...	...	25	6	1	16
Griffith	163	155	229	159	128	111	3,004	3,271	3,332	354	271	443	167	45	183
Gulgong	24	22	29	111	78	84	976	1,070	1,166	93	101	100	56	9	37
Gundagai	116	114	85	73	119	150	1,648	1,810	1,531	147	139	139	97	30	56
Gunnedah	78	66	68	62	35	8	1,605	2,012	2,143	152	158	174	190	32	61
Gunning	...	...	...	...	...	...	57	573	572	20	45	30	...	...	22
Hamilton	179	175	153	957	916	523	17,237	16,759	17,213	1,623	1,776	1,220	1,310	165	495
Harden	...	45	39	...	36	31	761	1,181	1,412	64	97	128	61	2	44
Hay	...	...	...	...	...	...	...	339	1,282	...	56	95	62	44	44
Henty	20	9	13	36	37	26	530	742	558	56	101	81	45	10	32
Inverell	101	122	80	431	371	413	3,210	3,436	4,044	300	329	363	220	37	188
Jerilderie	11	13	13	24	29	37	376	422	577	44	54	60	25	13	25
Junee	80	21	72	174	97	600	1,629	1,983	2,303	115	104	230	88	37	85
Kandos	...	...	7	...	11	...	...	...	41	...	...	20	1	...	11
Katoomba	67	46	94	606	556	273	3,014	3,780	3,588	650	582	505	170	40	98
Kempsey	152	147	149	870	797	516	2,693	3,117	3,677	331	350	373	469	33	167
Kiama	...	10	15	...	34	33	520	1,119	1,346	70	105	113	80	32	45
Kurri Kurri	110	123	101	643	617	617	6,559	6,917	6,580	347	387	323	333	120	144
Kyogle	137	85	38	138	115	90	1,696	2,340	2,779	162	219	238	105	16	89
Lawson	...	...	185	...	...	2	220	223	187	30	32	26	...	6	10
Leeton	49	44	41	226	228	211	3,243	3,116	2,840	220	242	224	124	47	96
Lismore	331	242	231	231	221	356	6,192	7,276	7,804	708	967	726	542	76	344
Lithgow	181	170	198	651	616	602	6,339	6,674	5,656	446	478	502	188	42	190

TABLE VII—*continued.*

Country Centres.	Visits to individual Newborn Babies.			Subsequent visits to homes of Babies.			Total Attendances.			Individual Attendances.			Test Meals.	Expectant Mothers Advised.	New cases Enrolled.
	1937.	1938.	1939.	1937.	1938.	1939.	1937.	1938.	1939.	1937.	1938.	1939.	1939.	1939.	1939.
Lockhart	10	9	1	24	21	4	766	751	221	101	91	57	20	2	12
Maclean	...	...	...	...	...	...	337	603	743	54	82	104	48	...	48
Manilla	...	...	28	...	...	26	...	64	944	...	49	81	37	9	37
Marrar	...	9	113	...	41	100	...	173	339	...	12	38	6	4	17
Mathoura	...	7	...	...	...	...	92	243	139	21	27	19	5	12	5
Maitland, East	54	48	60	126	93	145	1,085	1,352	1,564	104	124	146	32	9	52
Maitland, West	145	140	142	537	460	557	6,976	6,206	7,463	642	604	740	248	60	270
Mayfield	150	145	96	609	460	423	11,534	12,815	12,952	1,146	1,108	1,118	434	56	349
Merriwa	...	39	2	...	129	41	...	553	856	...	66	69	47	12	22
Michelago	...	...	1	...	...	1	137	116	165	27	19	38	2	11	8
Milthorpe	...	...	...	...	...	...	385	262	229	46	35	44	1	1	19
Mittagong	28	24	19	178	169	151	1,937	663	663	78	73	65	23	6	30
Molong	...	...	...	...	...	...	551	621	623	85	100	89	34	7	37
Moree	40	37	47	408	351	272	3,161	3,272	3,514	258	280	228	302	61	137
Moss Vale	30	45	31	156	170	161	971	1,061	1,257	77	75	65	27	4	43
Mudgee	80	73	62	279	225	158	3,469	3,347	2,865	304	333	323	159	42	133
Murrurundi	...	14	11	...	10	28	...	334	417	...	22	26	40	4	17
Murwillumbah	...	109	130	...	114	225	...	1,866	3,912	...	372	539	261	110	270
Muswellbrook	61	63	54	307	295	305	1,830	1,885	1,800	135	151	156	44	2	38
Narrabri	60	45	49	40	36	13	1,656	1,660	1,387	132	136	154	77	9	46
Narrandera	57	50	53	304	193	182	2,957	2,659	2,758	254	238	270	165	20	105
Narromine	35	32	23	165	211	260	1,261	1,346	1,696	103	121	122	60	16	44
Nevertire	...	...	2	...		10	...	64	144	...	16	...	10	...	8
Newcastle	234	216	197	968	760	808	8,415	8,640	8,344	531	515	544	814	96	263
New Lambton	143	93	81	125	152	78	2,041	1,665	1,853	200	191	179	44	7	93
Nowra	50	37	50	424	338	318	3,446	3,204	3,038	312	380	295	242	145	124
Oberon	6	35	23	2	10	38	65	117	172	28	41	35	6	...	13
Orange	234	248	205	523	1,060	1,049	6,547	7,966	7,121	758	766	795	275	80	303
Parkes	116	116	90	219	256	259	2,060	2,372	2,722	200	208	243	259	19	84
Penrith	...	125	60	...	101	358	...	1,621	2,443	256	192	256	93	11	107
Port Kembla	27	31	...	26	22	...	807	1,077	1,718	87	137	154	78	14	77
Port Macquarie	...	10	60	...	4	65	...	295	1,012	...	46	109	90	11	47
Queanbeyan	96	83	85	506	470	415	3,742	3,943	4,524	311	326	377	171	98	176
Quirindi	...	39	31	...	69	47	...	717	1,789	...	83	109	277	13	93
Richmond	...	...	...	...	...	...	2,185	2,283	2,396	141	146	149	90	14	71
Riverstone	...	...	...	...	...	...	1,062	1,225	1,106	88	46	84	35	8	42
Rye Park	...	3	17	...	9	41	...	72	194	...	14	21	19	...	8
Rylstone	14	9	12	67	42	41	569	665	624	54	71	57	24	21	19
St. Mary's	16	14	12	44	32	40	1,241	1,000	1,160	135	114	130	42	3	46
Scone	...	16	38	...	22	38	...	413	801	...	35	46	52	7	35

TABLE VII—*continued.*

Country Centres.	Visits to individual Newborn Babies.			Subsequent visits to homes of Babies.			Total Attendances.			Individual Attendances.			Test Meals.	Expectant Mothers Advised.	New cases Enrolled.
	1937.	1938.	1939.	1937.	1938.	1939.	1937.	1938.	939.	1937.	1938.	1939.	1939.	1939.	1939.
Singleton	33	69	100	290	292	249	1,681	1,751	1,954	135	159	168	143	20	73
Singleton South	...	...	...	...	...	...	785	807	909	51	73	87	48	6	40
Stockinbingal	...	6	2	...	7	5	...	142	283	...	17	25	11	8	8
Stockton	...	...	...	...	...	...	2,141	1,909	2,099	130	110	128	45	21	54
Stuart Town	9	13	6	41	46	54	396	351	334	34	36	40	10	5	14
Swansea	...	...	...	...	...	...	909	809	1,124	168	147	227	20	8	59
Tamworth	167	146	147	215	381	309	7,535	7,736	7,235	899	884	764	408	121	264
Taree	...	68	58	...	58	146	...	1,669	3,189	...	281	296	187	47	118
Temora	74	64	54	368	392	272	3,067	3,318	2,867	224	234	224	110	10	98
The Rock	...	...	...	...	...	...	...	204	183	...	34	46	17	...	16
Tocumwall	...	...	8	...	...	15	...	...	80	...	...	16	9	...	6
Trangie	22	6	10	72	92	71	864	769	827	70	65	61	27	6	21
Tumut	...	...	...	...	...	...	938	1,089	929	99	93	93	67	5	49
Uralla	43	39	28	206	163	180	1,269	1,602	1,612	100	118	132	40	74	58
Wagga	192	184	152	349	661	574	7.199	7,898	8,108	579	876	973	590	96	341
Walcha	53	64	60	214	233	210	1,524	1,528	1,341	120	163	140	78	27	61
Wallsend	116	94	61	75	167	79	2,793	2,699	2,475	250	283	285	69	6	150
Wallsend, West	...	...	...	...	...	...	2,337	2,111	1,731	192	195	297	15	11	42
Waratah	34	26	...	80	60	...	2,110	2,202	2,088	213	200	362	52	32	62
Warren	...	23	29	...	32	69	...	170	559	...	48	50	45	4	31
Wellington	131	115	126	318	494	556	4,420	3,956	4,008	330	352	405	221	51	137
Werris Creek	18	11	8	29	19	12	1,099	827	974	118	89	81	35	4	28
Weston	53	37	31	186	182	219	1,877	2,254	2,241	147	147	154	34	49	44
West Wyalong	15	2	...	33	...	3	732	890	912	100	99	112	53	7	43
Windsor	26	19	...	10	9	...	1,971	2,138	1,937	125	160	156	95	9	87
Wingham	...	...	...	...	...	...	...	594	1,326	...	96	140	66	12	51
Wollongong	221	210	228	580	706	650	6,502	6,307	6,899	651	724	769	567	40	271
Woodstock	14	...	...	28	...	...	213	213	128	26	22	10	10	1	5
Woy Woy	14	...	...	...	8	...	1,028	1,042	1,017	133	121	102	10	7	69
Wyong	13	...	6	2	...	...	1,257	1,579	1,221	130	154	157	34	6	93
Yanko	...	...	...	...	...	...	136	253	276	22	22	30	2	3	14
Yass	71	59	46	1,089	724	530	2,272	2,169	2,552	203	264	421	83	58	102
Yenda	...	11	1	...	3	2	49	43	58	...	12	16	4	1	5
Young	56	75	83	215	124	140	1,903	1,984	2,293	238	158	237	128	21	96
	7,240	7.212	6,944	25,740	26,158	25,596	288,010	312,961	336,169	26,923	29,768	31,871	17,766	3,865	13,014
Total Country	7,240	7.212	6,944	25,940	26,158	25,596	288,010	312,961	336,169	26,923	29,768	31,871	17,766	3,865	13,014
Total Metropolitan	10,471	10.650	11,405	26,158	24,877	28,652	452,526	475,099	516,253	37,691	37,449	41,309	22,583	3,810	17,029
Grand Total	17,711	17,862	18,349	52,098	51,035	54,248	740,536	788,060	852,422	64,614	67,217	73,180	40,349	7,675	30,043

SECTION 1—D.

TUBERCULOSIS DIVISION.

REPORT OF THE DIRECTOR FOR THE YEAR ENDED 31st DECEMBER, 1939.

Staff.

Director: DR. H. G. WALLACE.
Medical Officer: DR. J. HUGHES.
One Clerk. Nine Visiting Nurses.

Notifications.—1,687 cases of pulmonary tuberculosis were notified during the year, a decrease of 110 compared with the previous year. The decrease applied to all districts except the Hunter River District in which there was an increase of 11 notifications.

Notification is legally compulsory only when tubercle bacilli are found in the sputum. Tuberculosis other than pulmonary is not notifiable.

Deaths.—Deaths from all forms of tuberculosis numbered 1,011, a decrease of 35 compared with the previous year. 922 deaths were due to pulmonary tuberculosis—males, 592; females, 330.

These figures represent a continued fall in the death-rate from tuberculosis. The death-rate from pulmonary tuberculosis per 100,000 of population was 33·5, which is the lowest rate ever recorded in New South Wales.

Clinics.—In March, two additional anti-tuberculosis clinics were opened, one at the Sydney Hospital and one at the Manly District Hospital. At the latter, arrangements were made to establish a night X-ray clinic, to meet the needs of persons who are employed during the day and who can attend for X-ray examination only at night.

It is anticipated that other Clinics will follow this example.

The establishment of additional clinics to serve the western and southern suburbs is desirable. The Parramatta District Hospital and the St. George District Hospital have been suggested as suitable centres.

Towards the end of the year an arrangement was made with Sydney radiologists for groups of persons to be examined by the miniature film method in the evening for the purpose of diagnosis of pulmonary tuberculosis. A small fee is charged, and the service is attracting many persons who would otherwise be missed. Already a number of cases of active tuberculosis have been detected by this means. The care taken by the radiologists and the improvement of technique have shown that this method of diagnosis has remarkable possibilities.

Sanatoria.—Approximately 1,000 beds are available in Sanatoria for tuberculous patients. During the year the Red Cross Farm at Exeter was closed, and an equivalent number of beds made available at "Bodington," Sanatorium. Four additional beds were provided at the Queen Victoria Home at Thirlmere.

Not only are all sanatoria continuously filled to capacity, but long waiting-lists have existed for a considerable time. It is considered that an additional 200 sanatorium beds are needed at present, and that further accommodation is likely to be required in future. Replacement of the existing huts at the Randwick Auxiliary Hospital by a Chest Hospital of modern design, provided with up-to-date equipment, has been suggested as a method of providing for future development in this direction.

After-care.—The care of tuberculous individuals after discharge from sanatoria, and adequate provision for their dependants, constitute an important phase of preventive medicine. The table appended hereto shows that of 767 patients discharged from the principal sanatoria in 1934, no less than 679, or nearly ninety per cent., were either dead or re-admitted to sanatoria within five years. Improved organization for after-care is essential.

During 1939, an additional hostel for six single men was opened at the Picton Lakes Village Settlement.

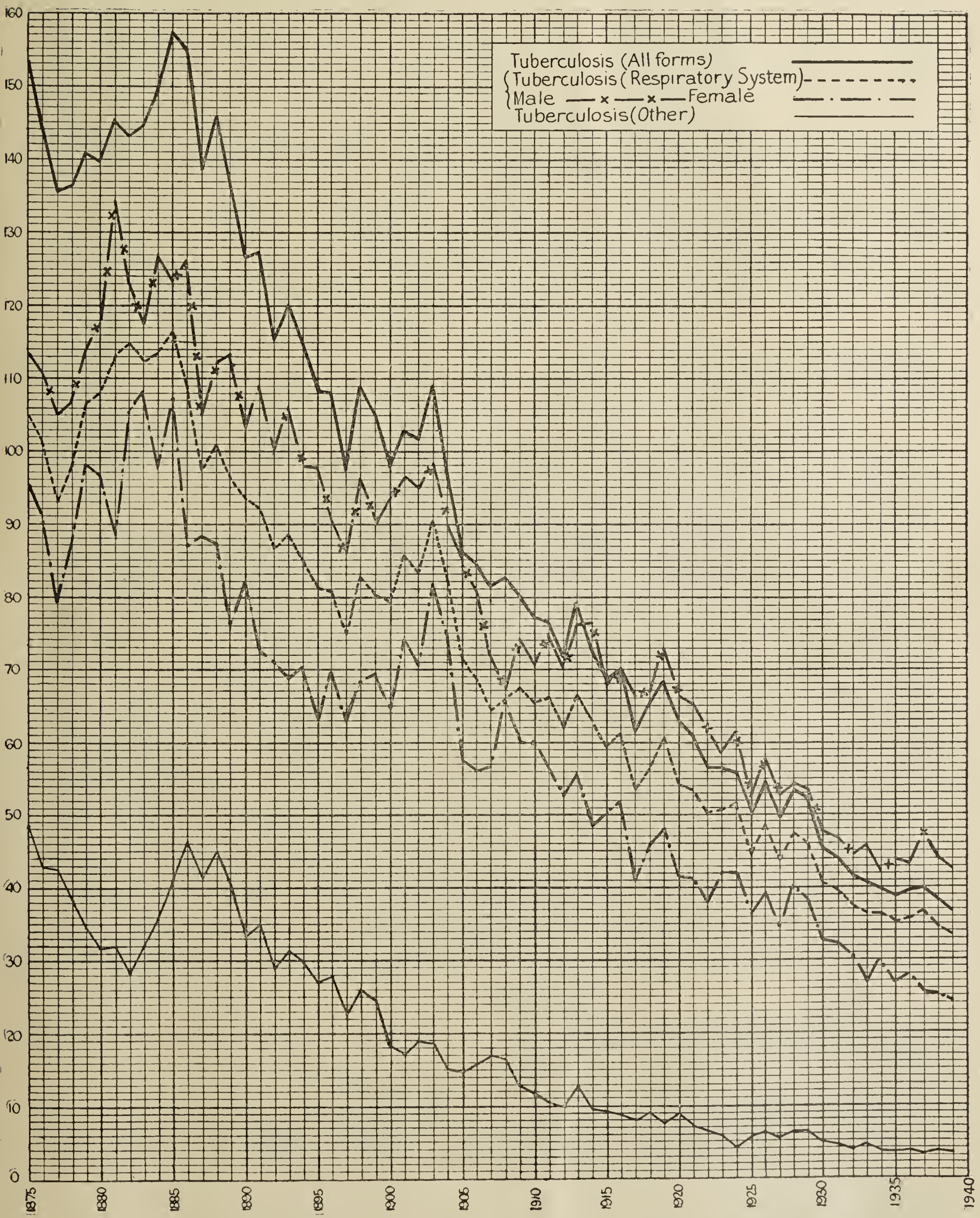
Co-operation.—The thanks of the Division are due to the various agencies, both voluntary and governmental, which have assisted throughout the year in the work of detecting and caring for tuberculous individuals.

H. G. WALLACE,
Director.

GRAPH No. 16.

TUBERCULOSIS.

Annual Death Rate per 100,000 of the Population in New South Wales, 1875-1939.



Notifications.

TABLE 1.—Showing the age and sex incidence of the cases of Pulmonary Tuberculosis notified during the year 1939.

Age Period.	Metropolitan Combined Sanitary District. Mean Population. 1,380,940			Hunter River Combined Sanitary District. Mean Population. 223,640			Broken Hill Combined Sanitary District. Mean Population. 28,200			Remainder of State. Population. 1,116,354			Whole State. Population. 2,749,134		
	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.
Under 1 year	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1– 4	6	1	7	...	...	...	...	...	...	1	...	1	7	1	8
5–14	10	14	24	...	...	...	1	2	3	4	4	8	15	20	35
15–24	62	120	182	5	12	17	...	...	...	11	24	35	78	156	234
25–34	117	156	273	7	7	14	1	1	2	19	38	57	144	202	346
35–44	162	101	263	15	8	23	1	...	1	37	28	65	215	137	352
45–54	206	56	262	17	4	21	1	...	1	38	14	52	262	74	336
55–64	149	42	191	8	7	15	1	...	1	28	9	37	186	58	244
65 and over	69	28	97	6	2	8	2	...	2	19	6	25	96	36	132
All ages	781	518	1,299	58	40	98	7	3	10	157	123	280	1,003	684	1,687

Deaths.

TABLE 2.—Showing the number of deaths from all forms of Tuberculosis in (*a*) Metropolis, (*b*) whole State, during the year ended 31st December, 1939.

	Metropolis.			Whole State.		
	Males.	Females.	Total.	Males.	Females.	Total.
Respiratory system	381	195	576	592	330	922
Meninges and nervous system	9	7	16	23	12	35
Other	14	11	25	32	22	54
Total	404	213	617	647	364	1,011

TABLE 3.—Showing the age and sex of the persons whose deaths from Pulmonary Tuberculosis were notified during the year ended 31st December, 1939.

Age Period.	Metropolitan Combined Sanitary District. Mean Population, 1,380,940			Hunter River Combined Sanitary District. Mean Population, 223,640			Broken Hill Combined Sanitary District. Mean Population, 28,200			Remainder of State. Population, 1,116,354			Whole State. Population, 2,749,134		
	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.
Under 1 year	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1– 4	3	...	3	...	...	...	...	...	...	...	...	...	3	...	3
5–14	...	1	1	...	1	1	...	...	...	...	...	...	...	2	2
15–24	15	29	44	4	6	10	1	...	1	10	17	27	30	52	82
25–34	45	71	116	5	4	9	...	1	1	19	25	44	69	101	170
35–44	77	45	122	12	6	18	...	...	...	35	18	53	124	69	193
45–54	113	25	138	7	3	10	2	...	2	36	12	48	158	40	198
55–64	96	25	121	7	5	12	1	...	1	30	9	39	134	39	173
65 and over	49	17	66	4	1	5	1	...	1	20	9	29	74	27	101
All ages	398	213	611	39	26	65	5	1	6	150	90	240	592	330	922

TABLE 4.—Showing Institutional Accommodation available for patients suffering from Pulmonary Tuberculosis.

Sanatoria and Hospitals.	Type of Cases Received.	Number of Beds.		
		Male.	Female	Total.
1. Waterfall Sanatorium (under Government control)	Intermodiate	292	136	428
2. Randwick Auxiliary Hospital (under Government control)	Late	90	60	150
3. Queen Victoria Homes (subsidised)—				
Thirlmere	Early fomale	...	54	54
Wentworth Falls	Early male	54	...	54
4. Red Cross Society (subsidised)—				
"Bodington" at Wentworth Falls	Early male and female	67	24	91
"Malahide" at Pennant Hills	Late male and female	15	6	21
(The above institutions work in full co-operation with the Tuberculosis Division.)				
R.T. Hall Sanatorium	....	4	4	8
Private Hospitals (approximately)	....	...	...	40
Repatriation Department—				
Prince of Wales Hospital	....	60	...	60
Lady Davidson Home	....	97	...	97
				1,003

Table 5.—Showing number of patients receiving Institutional Treatment for twelve months ended 31st December, 1939.

	Queen Victoria Home, Wentworth Falls.	Queen Victoria Home, Thirlmere.	Red Cross Sanatorium, "Bodington," Wentworth Falls.	Waterfall Sanatorium.	Red Cross Sanatorium, "Malahide," Pennant Hills.	R. T. Hall Sanatorium, Hazelbrook.
1. Number of patients in Institution on 1st Jan., 1939	46	55	69	396	19	13
2. Number of patients admitted during year.........	62	76	93	453	26	10
3. Number of patients discharged (including deaths)	62	75	85	440	26	11
4. Number of patients remaining in Institution on 31st December, 1939	46	56	77	409	19	12
5. Average daily number of beds occupied	47·01	53·64	65·15	407	19	13

Average Residence in Sanatoria and Hospitals.

Table 6.—Showing the average residence in days and condition on discharge from Sanatoria and Hospitals of patients under treatment for period of twelve months ended 31st December, 1939.

Condition on Discharge.	Queen Victoria Home, Wentworth Falls.		Queen Victoria Home, Thirlmere.		Red Cross Sanatorium, "Bodington," Wentworth Falls.		Waterfall Sanatorium.		Red Cross Sanatorium, "Malahide," Pennant Hills.		R. T. Hall Sanatorium, Hazelbrook.	
	No. of Patients.	Average Residence in days.	No. of Patients.	Average Residence in days.	No. of Patients.	Average Residence in days.	No. of Patients.	Average Residence in days.	No. of Patients.	Average Residence in days.	No. of Patients.	Average Residence in days
1. Arrested (A.)	...	...	...	...	...	...	2	2,779·0	...	...	...	...
2. Quiescent (Q.)	31	284·71	33	267·3	23	339	15	471·0	...	...	7	322
3. Much Improved (M.I.)	15	299·2	25	230·3	27	270	91	207·0	1	183	1	543
4. Improved (I.)	10	229·7	11	220·9	20	165	199	393·0	1	90	1	576
5. Stationary (S.)	2	45·0	5	49·8	10	86	62	169·0	4	157	...	...
6. Worse (W.)	2	164·0	1	176·0	3	295	8	63·0	4	48	2	423
7. Dead (D.)	2	50·5	...	...	2	346	63	445.0	16	102	...	...

Table 7.—Showing condition of patients on admission to, and discharge from, Institutions for the treatment of Pulmonary Tuberculosis for the twelve months ended 31st December, 1939.

Condition on Admission.	Queen Victoria Home, Wentworth Falls.								Queen Victoria Home, Thirlmere.								Red Cross Sanatorium, "Bodington," Wentworth Falls.							
	Condition on Discharge.								Condition on Discharge.								Condition on Discharge.							
	A.	Q.	M.I.	I.	S.	W.	D.	Total	A.	Q.	M.I.	I.	S.	W.	D.	Total.	A.	Q.	M.I.	I.	S.	W.	D.	Total.
L1T1...........	...	4	1	...	1	...	...	6	...	25	9	2	1	...	...	37	...	14	5	2	2	...	...	23
L2T1...........	...	26	13	10	1	2	2	54	...	3	3	1	...	...	...	7	...	9	11	3	2	...	...	25
L1T2...........	...	...	...	...	...	...	...	...	...	4	3	1	2	...	...	10	...	...	...	1	1	...	...	2
L2T2...........	...	1	1	...	...	...	...	2	...	1	7	5	1	1	...	15	...	...	8	10	3	1	...	22
L3T1...........	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	1	...	1	6
L3T2...........	...	...	...	...	...	...	...	...	...	...	3	2	1	...	...	6	...	...	1	2	1	2	1	7
L1T3...........	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
L2T3...........	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
L3T3...........	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals ...	...	31	15	10	2	2	2	62	...	33	25	11	5	1	...	75	...	23	27	20	10	3	2	85

Condition on Admission.	Waterfall Sanatorium.								Red Cross Sanatorium, "Malahide," Pennant Hills.								R. T. Hall Sanatorium, Hazelbrook.							
	Condition on Discharge.								Condition on Discharge.								Condition on Discharge.							
	A.	Q.	M.I.	I.	S.	W.	D.	Total.	A.	Q.	M.I.	I.	S.	W.	D.	Total.	A.	Q.	M.I.	I.	S.	W.	D.	Total.
L1T1...........	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	7	...	...	...	...	...	7
L2T1...........	...	8	23	40	11	...	1	83	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...
L1T2...........	...	3	25	4	16	...	...	48	...	...	...	...	...	...	...	...	...	1	...	...	...	2	...	3
L2T2...........	...	1	17	39	...	...	13	70	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...
L3T1...........	...	3	21	4	...	...	...	28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
L3T2...........	1	...	3	103	26	3	16	152	...	...	...	1	1	1	...	3	...	...	...	...	...	...	...	...
L1T3...........	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
L2T3...........	...	...	2	9	...	2	4	17	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1
L3T3...........	...	...	...	...	9	3	29	41	...	...	...	...	2	3	16	21	...	...	...	...	...	...	...	...
Totals ...	2	15	91	199	62	8	63	440	...	...	1	1	4	4	16	26	...	8	1	...	...	2	...	11

Table 8.—Comparative Statement of work carried out by the Anti-Tuberculosis Clinics during period 12 months ended 30th June, 1939.

	Royal Prince Alfred Hospital.	Royal North Shore Hospital.	Anti-Tuberculosis Association of N.S.W.	Newcastle Throat and Chest Dispensary.	Canterbury District Hospital.	Manly District Hospital.	Sydney Hospital.
(1) Total number of attendances (including contacts).	9,981	2,594	5,286	3,370	1,034	316	455
(2) Number of new patients (excluding contacts) examined during the year as above—							
(*a*) Definitely tuberculous	282	107	113	33	90	15	33
(*b*) Non-tuberculous	167	109	651	126	...	143	310
(*c*) Diagnosis not completed	...	10	68	60	...	...	7
(3) Number of contacts examined during the year—							
(*a*) Definitely tuberculous	250	7	145	8	31	...	1
(*b*) Non-tuberculous	465	311	912	122	278	111	100
(*c*) Diagnosis not completed	...	...	70	60	39	...	4
(4) Total number of nurses visits during the year.	2,296	3,735	2,998	233	520	830	97
(5) Number of homes visited during the year.	1,869	956	1,066	90	375	370	45
(6) Number of sputum examinations ...	530	224	640	126	68	24	26
(7) Number of X-Ray examinations—							
(*a*) New cases	449	187		219	90	15	99
(*b*) Cases previously X-Rayed at the clinic	1,694	529	2,003	357	96	4	...
(*c*) Contacts	715	318		190	348	143	105
(8) Number of cases on clinic register 30th June, 1939.	3,163	2,716	2,238	752	90	15	33

APPENDIX.

INVESTIGATION INTO THE AFTER-HISTORIES OF 767 PATIENTS ADMITTED TO VARIOUS SANATORIA IN NEW SOUTH WALES IN 1934.

(By Dr. John Hughes, Medical Officer, Tuberculosis Division.)

The 767 patients who have been followed up were admitted to Waterfall Sanatorium, the Queen Victoria Homes (Thirlmere, female patients, and Wentworth Falls, male patients); Bodington Red Cross Home; and the Exeter Red Cross Farm (male patients). Of the total of 767 patients admitted during 1934, 350 were found to have died of tuberculosis by 1939, *i.e.* within a period of 5 years.

Sanatoria	Number of persons admitted in 1934.	Number of deaths recorded among such admissions 1934, to December, 1939.	Died within 5 years.		Of the 767 admissions in 1934, 329 sought re-admissions to Sanatoria within 5 years.	
			Year of Death.	No. Died.	Sanatoria.	No. who Sought Re-admission.
Waterfall—						
Males	352	195	1934	77	Waterfall	182 (males)
Females	159	83	1935	92	,, ...	51 (females)
Queen Victoria Homes—			1936	75	Queen Victoria Homes—	
Wentworth Falls (males) ...	61	16	1937	47	Wentworth Falls	20 (males)
Thirlmere (females)	81	20	1938	33	Thirlmere	22 (females)
			1939	26		
Bodington Red Cross Home ...	83	31	...	...	Bodington	36 (males)
Exeter Red Cross Farm	31	5	...	...	Exeter	18 (males)
Total	767	350	...	350		329

SUMMARY (Male Patients, Waterfall).

Admitted in 1934	352

ANALYSIS of Deaths.

Died in 1934	45
Died in 1935	55
Died in 1936	39
Died in 1937	21
Died in 1938	19
Died in 1939	16
	195 or 49·75 per cent.
Readmitted to Sanatoria	182

Summary (Female Patients, Waterfall).

Admitted in 1934	159

Analysis of Deaths.

Died in 1934	24
Died in 1935	21
Died in 1936	24
Died in 1937	9
Died in 1938	4
Died in 1939	1
	83, or 52 per cent.
Readmitted to Sanatoria	51

Summary (Patients, Queen Victoria Sanatorium, Wentworth Falls—Males).

Admissions in 1934	61
Deaths in five years	16, or 26 per cent.

Analysis of Deaths.

Died in 1934	1
Died in 1935	2
Died in 1936	2
Died in 1937	8
Died in 1938	1
Died in 1939	2
	16

22 patients sought re-admission to Sanatoria, i.e. 30·5 per cent.

Summary (Patients, Queen Victoria Sanatorium, Thirlmere—Females).

Admitted in 1934	81
Died in 1934	0
Died in 1935	4
Died in 1936	4
Died in 1937	5
Died in 1938	3
Died in 1939	4
Total Deaths in five years	20, or 24·7 per cent.

Re-admitted to Sanatoria—22.

Summary (Patients, Bodington Red Cross Sanatorium).

Admissions during 1934	83
Died up to 1939	31, or 37 per cent.

Analysis of Deaths.

Died in 1934	7
Died in 1935	9
Died in 1936	5
Died in 1937	2
Died in 1938	5
Died in 1939	3
	31

36 sought readmission to Sanatoria.

Summary (Patients at Exeter).

Admitted during 1934	31
Died from tuberculosis within five years of admission	5, or 16·1 per cent.

Analysis of Deaths.

Died in 1935	1
Died in 1936	1
Died in 1937	2
Died in 1938	1
	5

SECTION 1—E.

DIVISION OF INDUSTRIAL HYGIENE.

REPORT OF THE MEDICAL OFFICER OF INDUSTRIAL HYGIENE FOR THE YEAR ENDED 31ST DECEMBER, 1939.

Staff.

Medical Officer of Industrial Hygiene, CHARLES BADHAM, B.Sc. M.B., Ch.M., D.P.H.
Assistant Medical Officer, A. O. V. TYMMS, B.Sc., M.B., B.S.
Physicist Assistant, H. E. G. RAYNER, B.Sc.
Chemist Assistant, A. M. WILLISON, M.Sc.

This Division undertakes the investigation of hazards to health in factories, mines and industry generally, and the diagnosis of cases of occupational disease.

STUDIES IN INDUSTRIAL HYGIENE, No. 20.

THE LUNGS OF COAL MINERS IN NEW SOUTH WALES, CHEMICAL ANALYSIS AND PATHOLOGY.

By CHARLES BADHAM and HAROLD BURFIELD TAYLOR, Department of Public Health, New South Wales.

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INTRODUCTION.

This work is an extension of that published by us in the Report of the Director General of Public Health in 1936*. It concerns the findings, chemical and pathological, of thirty lungs of coal miners which have been studied since that date and provides further chemical and pathological facts on which to base a future monograph dealing with the dust diseases of workers in this state.

It is not proposed to summarize the numerous papers which have been written on dust diseases since the publication of our last work, for the basis of our work has been to attempt to correlate the mineral content of the lungs of our coal miners with the industrial history of the worker and the pathological appearance. Owing to the good fortune of our division in receiving a visit from Dr. F. W. Simson of the South African Institute for Medical Research, and his demonstration of the formation of the early silicotic nodule, our views on the formation of coal dust nodules in the perivascular lymphatics have been modified, and we now regard most of the nodules of the coal dust type as taking origin at the same site as the early silicotic nodule but owing to their more diffuse nature they early surround and include the terminations of respiratory bronchioles. Many of these nodules being contiguous with the perivascular lymphatics appear to be continuous with them. Dust cells containing insoluble dusts aggregate at the lymphoid nodes and the amount of dust capable of being removed by the lymphatics appears relatively small; if these dusts are of active free silica, that is free silica unmodified by other dusts, the typical silicotic response appears; if of free silica inactivated by other dusts or modified in its action by so called inert dusts, the type of response which appears is not that of the silicotic type. How far this type of reaction is due to the inert dusts and how far to the minimal amount of free silica found with the inert dust is a question which is not likely to find an early answer.

We believe that analysis of the kind which we have engaged on will aid in this search. The recent work of physical chemists will help in this matter but will require to be construed along with the results of the practical pathology of the lungs of men affected with dust diseases. The thought "that what is found in the lung after 20 years or so may bear little relation to the mineral species which, entering the lung, have caused the patient's death" is in our opinion not one which will affect conclusions drawn from the analysis of lungs of men who have worked in the same mine and seam until the moment of death. And if these lungs are comparable on analysis with the lungs of men who have left these pits for a period of years, then it will strengthen our opinion that very little of the dust breathed finds its way into the interstitial tissue of the lungs and that very little of the relatively insoluble dust is eliminated by solution or by the lymphatics.

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* The Lungs of Coal, Metalliferous and Sandstone Miners and Other Workers in New South Wales. Chemical Analysis and Pathology, by Charles Badham and Harold Burfield Taylor, Department of Public Health, New South Wales. Annual Report of the Director General of Public Health, New South Wales, 1936, pp. 100-143.

CHEMICAL ANALYSIS.

Method of Analysis.—The method of analysis employed to determine the composition of a lung ash is given in detail in a previous publication.

In view of the opinions that there is an inherent difficulty in determining free and combined silica in animal tissues, it is desired to draw attention to the method employed and to show that it is not a method of rational analysis, but one in which the free and combined silicas are actually determined.

Most natural silicates when heated to between 500°C. and 800°C. are changed in such a way that they can be readily split into their component parts by the action of sulphuric acid. When the lung is ashed below 800°C., any silicates present are then changed, and consequently when a lung ash is treated with sulphuric acid and subsequently with hydrochloric acid the residue consists almost entirely of silica (quartz) and silica which has been split from any silicates present. The silica split from silicates is soluble in a 10 per cent. boiling solution of sodium carbonate; the silica (quartz) remains unchanged. In practice it has been found that a very small amount of silicate is not split by the action of sulphuric and hydrochloric acids, and it is to this small amount only that a method of rational analysis has been applied. The amount is usually of the order of 5 mgms. from 0·5 grm. lung ash and even if neglected would have little influence on the analysis.

The determination of the amount of coal dust in the lung has been attempted by the flotation process which enables the coaly matter to be separated from the lung tissues. The coaly matter thus separated is weighed and ignited. The difference between the amount of coaly matter and the ash after ignition has been returned as free carbon.

ROYAL COMMISSION ON THE SAFETY AND HEALTH OF WORKERS IN COAL MINES.

Those who are interested in the nature and working conditions of the coal mines of New South Wales will find in the Report of the Royal Commission upon the Safety and Health of Workers in Coal Mines, 1939 (obtainable from the Government Printer, New South Wales), a masterly presentation by Mr. Justice Davidson, and Messrs. McKensey and Lowden of the working conditions in our coal mines. The report deals with the various hazards, ventilation and methods of work and the health of workers particularly as regards dust diseases, with a full and excellent summary of present knowledge of this subject. Details of geological structure and dust sampling in various pits will help to make clear the conditions under which the workers referred to in this report laboured: the hundred and fifty pages dealing with dust and dust diseases will, we believe, receive the commendation of industrial hygienists generally.

COAL MINERS—NEW SOUTH WALES SOUTHERN COALFIELD.

CASE NOS. 94, 98, 100, 117, 122.

CASE No. 94.

The patient was a coal miner aged 48 years. He died suddenly from coronary disease. He never had any symptoms except those attributable to gastric trouble and they were of a minor degree.

He worked in the Southern field coal mines practically all his life, he worked underground for twenty-five years in the Old South Clifton, Coal Cliff, Wongawilli, and the Old Bulli pit where he died on his way out.

Examination of the Lungs.—The right lung is greyish black. There is a little puckering at the apex and an underlying consolidation. On section the upper lobe has an anthracotic consolidation 5 x 4 x 6 cm mostly excavated by necrotic processes. There is a generalised condition of perivascular fibrosis of the coal dust type with marked emphysema. The glands are not enlarged but there are small peripheral areas suggesting caseation or fibrosis.

The left lung is greyish black. On section the upper lobe has an irregular consolidation measuring 2 x 2 x 3 cm. and a few smaller consolidations. The whole lung shows a condition of perivascular fibrosis of the coal dust type with well marked emphysema. The glands are small, hard and black.

Dissecting Microscope.—This shows well marked perivascular fibrosis of the coal dust type with nodulation and consolidation and well-developed emphysema.

Sections.—These show nodulation and perivascular fibrosis of the coal dust type and associated emphysema; the consolidations are of the anthracotic type; there is no evidence of tuberculosis.

Smears made from the anthracotic cavitation and the glands did not reveal any tubercle bacilli.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	57·09
Combined silica	13·80
Free silica	3·45
Free carbon	206·0
	Grammes.
Combined silica content of both lungs estimated ...	2·5
Free silica content of both lungs estimated	0·62
Free carbon content of both lungs estimated ...	37·0

Remarks.—This is a very good example of the dust which may accumulate in the lungs of a southern field coal miner, showing the large amount of carbon and the small amount of free silica. From the clinical side it is interesting to note that the consolidations, one with cavitation but no evidence of tuberculosis, and the emphysema and coal dust fibrosis, all existed with no complaint of ill health.

Diagnosis.—Pneumonokoniosis of the coal dust type, massive, and emphysema.

Group.—Coal miners. New South Wales. Southern field.

CASE No. 98.

The patient was a coal miner aged 53. He worked in the Southern coalfield for thirty-nine years—in Mt. Kembla for twelve years and at Scarborough for twenty-seven years. He ceased work eighteen months before he died and spent some time in a sanatorium. Seen by a medical board two months before his death, he complained of shortness of breath, cough and loss of weight. He was emaciated and breathless. The chest expansion was one and a half inches. The percussion note was resonant all over the chest. There were moist rales in the upper lobes of both lungs. The apex beat of the heart was in the fifth interspace one and a half inches outside the nipple line.

A radiograph of the chest was reported on as " showing extensive diffuse and nodular fibrosis throughout both lungs. There are areas of consolidation and cavitation in the upper third of each lung. The condition appears to be one of advanced active tuberculosis."

The finding of the medical board was that there was an incapacitating pulmonary fibrosis probably due to the dust of coal mines and a probable tuberculous condition.

Examination of the Lungs.—The left lung is covered with adhesions most marked over the upper lobe. On section the whole of the upper lobe and the upper portion of the lower lobe is a mass of nearly contiguous nodules of the coal dust type fused chiefly subpleurally to form fibrotic masses. The lower portion of the lower lobe shows a less well marked development of nodules. The bronchi are thickened and the glands small and soft.

The right lung is covered with adhesions which are particularly well organized over the posterior aspect of the upper lobe. On section both the upper and the lower lobes (particularly the upper) show a marked development of nodules of the coal dust type frequently contiguous, together with some emphysema. There is also in the upper lobe a subpleural black consolidation measuring 4 x 4 x 2 cm. The bronchi are thickened and the glands small, black and soft. There is no evidence of tuberculosis in either lung.

Dissecting Microscope.—This shows well marked fibrotic nodulation of the coal dust type giving rise to smaller or greater consolidations chiefly subpleural. There is a moderate amount of emphysema and some pulmonary oedema or hypostatic pneumonia.

Sections.—The sections show marked pneumonokoniosis of the coal dust type and patches of pneumonia.

Examination of the Heart.—The heart is enlarged with well marked pericardial adhesions. There is hypertrophy of both ventricles. The aorta, valves and coronary arteries show no changes from normal.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	40·80
Combined silica	6·80
Free silica	3·50
Free carbon	140·0
	Grammes.
Combined silica content of both lungs estimated	2·0
Free silica content of both lungs estimated	1·1
Free carbon content of both lungs estimated	42·0

Remarks.—This lung is of particular interest on account of the industrial history of work only in two pits of the Southern coal field and the enormous amount of coal dust (estimated as free carbon) present in the lungs.

Diagnosis.—Pneumonokoniosis, coal dust type, massive, and emphysema.

Group.—Coal miners. New South Wales. Southern coal field.

CASE No. 100.

The patient was a coal miner aged 48. He worked in the Kembla Colliery, Southern coal field, for 35 years. He ceased work five months before his death as he had soreness over the front of the chest, When seen by a medical specialist five weeks before his death he complained of soreness over the front of the chest, and of a pain that came on, resting or working. He complained also of shortness of wind. He had lost weight and was pale and debilitated. The examination of the chest revealed a resonant percussion note throughout. The heart was not enlarged. The blood pressure was 140/95. The specialist considered that this miner suffered from chronic bronchitis which was aggravated by his work as a coal miner. The radiographer reported marked chronic bronchitic changes in the lung field but that no stippling characteristic of pneumonokoniosis could be seen.

His medical attendant states that over a period of a year he complained of cough and shortness of breath and showed debility similar to that of a case to tuberculosis but without the clinical signs of that disease, nor did radiography reveal any lesion.

Examination of the Lungs.—The left lung is greyish black. There is one small emphysematous bulla on postero-lateral edge. On section there is non-fibrous consolidation at the bases of both lobes. There is a small amount of coal dust cell deposition in a number of primary units with some development of emphysema at these sites.

The right lung presents the same appearance as the left, but there is more non-fibrous consolidation at the bases of the middle and lower lobes with pleural adhesions of the base of the lung.

Dissecting Microscope.—There is coal dust cell deposition in a moderate number of primary units but this has not gone on to the formation of nodules of the coal dust type. Associated with the coal dust cell deposition in the primary units there is some development of emphysema.

Examination of the Heart.—The heart is small and weighs 9 ounces. The ventricular walls are not thickened. The valves are normal. The coronary arteries were dissected out. The left coronary artery is not thickened or blocked. The right coronary artery is not thickened, but there was a recent organized clot occupying its lumen, commencing half an inch from its origin and extending distally for from one-third to one-half inch. It was easily removed and greyish in appearance and the wall of the artery was not thickened but appeared expanded at this region.

Sections.—The sections show marked pulmonary oedema and emphysema with coal dust cell aggregation, without the formation of nodular fibrosis of the coal dust type or only an early stage of this.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	26·95
Combined silica	2·80
Free silica	0·56
Free carbon	23·00
	Grammes.
Combined silica content of both lungs estimated ...	0·64
Free silica content of both lungs estimated	0·13
Free carbon content of both lungs estimated ...	5·29

Remarks.—While there is a deposition of coal dust cells in a moderate number of primary units, nodules of the coal dust type have not been formed. There is associated with the primary units containing dust cells a greater amount of emphysema than is found elsewhere in the lungs. The degree of emphysema present was sufficient to cause disability.

Diagnosis.—Coronary occlusion. Oedema of the lungs. Pneumonokoniosis of the coal dust type, early. Emphysema.

Group.—Coal miners. New South Wales. Southern field.

REPORT BY DR. A. H. TEBBUTT DEALING WITH CASE 100.

The history forwarded by Dr. Mackinnon is, in my opinion, one of death from heart failure, of a type which is generally found to be associated with coronary occlusion or coronary atheroma in the subsequent autopsy.

I have examined the *heart.* It is not in a good state of preservation but I consider that there was definite dilation of the left ventricle. The cavity is enlarged, and there is some flattening of the papillary muscle. I could not find any myocardial infarction, but as he died soon after the attack, any changes from such would not be easily detected and certainly not in a poorly-preserved specimen. I found no evidence of occlusion nor any severe affection of the left coronary artery or its main branches, but the right coronary and its main branches showed stiffening of their walls and some tortuosity, and there was some intra-vascular thrombus on the wall of the right main coronary not far from its origin.

Sections of the left coronary artery confirmed the absence of significant change. A section through the right coronary at the site above described, shows thickening and fibrosis of the intima, and there is a split in it which might be an artefact, but near it and between it and the lumen the thickened intima shows necrosis, and thrombus formation, and this in my opinion is an ante-mortem condition. There is adherent platelet and fibrin-thrombus near the lumen. It is very probable this lesion was related to his death, in spite of the fact that the right coronary mainly supplies the right side of the heart.

The *lungs* showed some emphysema, not of a severe grade. There were areas which appeared to be consolidated. I cut sections of the left upper lobe and the right lower lobe. The consolidation is due to oedema, and is not pneumonic. There is some perivascular fibrosis associated with mild deposits of coal-dust, and there is slight increase in fibrous tissue near the larger vessels. I consider that the fibrosis and anthracosis are of a mild grade.

In my opinion death was due to heart failure associated with coronary disease. I do not consider that there is any reason to associate the pulmonary anthracosis with the cardiac condition.

CASE No. 117.

The patient was a coal miner aged 48. He worked in the Southern Coalfield for some years, at Wongawilli pit which is damp and not dusty.

He died suddenly while being treated in hospital for a fracture of the pelvis.

Examination of the Lungs.—This examination shows no departure from normal.

Examination of the Heart.—This examination shows marked atheroma of the coronary arteries with occlusion.

Chemical Analysis—

	Milligrammes per gramme of dry lung.
Ash	17·05
Combined silica	0·27
Free silica	0·32
Free carbon	5·00
	Grammes.
Combined silica content of both lungs estimated ...	0·06
Free silica content of both lungs estimated	0·07
Free carbon content of both lungs estimated ...	1·0

Diagnosis.—Atheroma and occlusion of coronary arteries.

Group.—Coal Miners. New South Wales. Southern field.

CASE No. 122.

The patient was a coal miner aged 63. He worked all his life in coal mines of the Southern field. He is said to have died from uraemia and bronchitis.

Examination of the Lungs.—The right lung is black; the lower lobe and a portion of the upper lobe are solid with pneumonia. The upper and middle lobes have a small number of nodules of the coal dust type and a little emphysema; the lower lobe has fewer nodules. The bronchi of all lobes are thickened. The glands are soft and not enlarged. " Sago grains " are seen in the upper part of the lower lobe.

The left lung is black in colour, with some adhesions over the apex. "Sago grains" are seen in the pleura of the lower lobe. The upper lobe has a moderate development of nodules of the coal dust type and some emphysema. The lower lobe contains a lesser number of nodules and there is general pneumonic consolidation.

Dissecting Microscope.—There is a moderate development of nodulation of the coal dust type associated with emphysema. Oedema of the lungs and pneumonia are also present.

Sections.—These show well marked nodulation of the coal dust type, emphysema, oedema, and patches of pneumonia.

Sections of the liver show marked venous congestion and fatty degeneration.

Sections of the kidney show the presence of acute tubular nephritis.

Examination of the Heart.—The heart weighs 18 ozs. and shows left ventricular hypertrophy. The right and left coronary arteries showed well marked calcification and atheroma.

Chemical Analysis—

	Milligrammes per gramme of dry lung.
Ash	32·43
Combined silica	7·68
Free silica	0·06
Free carbon	72·0
	Grammes.
Combined silica content of both lungs estimated ...	3·9
Free silica content of both lungs estimated ...	0·03
Free carbon content of both lungs estimated ...	36·8

Diagnosis.—Pneumonokoniosis of coal dust type, moderate. Lobar pneumonia. Atheroma of coronary arteries.

Group.—Coal miners. New South Wales. Southern field.

COAL MINERS—NEW SOUTH WALES—WESTERN COALFIELD.

CASE NOS. 86, 89, 95, 99, 104, 107, 109, 110, 116.

CASE No. 86.

The patient was a coal miner aged 59. He had worked at a Western field colliery (The Lithgow) for forty-five years, at various jobs, and for the last twenty-two years was at the face.

For the twelve months before his death he complained of shortness of breath, resting or working. He was seen by a Medical Board shortly before he died by felo de se, following anxiety concerning his claim for compensation. He had a vacant expression, marked myotatic irritability, thickened radial arteries and increase of cardiac dullness, but no respiratory abnormalities. His pulse rate was quickened but he gave a fair tolerance test and did not exhibit any distress after exercise. The radiograph shows extensive nodular fibrosis throughout the upper two-thirds of both lung zones. Opacities are also present in the upper portions of the lungs and pleural thickening over both apices. The Board assessed his incapacity at seventy-five per cent.

Examination of the Lungs.—The left lung is generally blackened. On section the upper lobe has well marked nodular fibrosis of the coal dust type and a wedge shaped area of consolidation. The apex of this consolidation is the hilus and the outer part runs to a puckered area on the surface of the upper lobe and is 3 x 2 cm. It has small cavitations, probably necrotic. There are also two areas of consolidation about 1 cm. in diameter in the upper lobe. The lower lobe has a little nodulation of the coal dust type in its upper part. Both lobes show well-marked emphysema. The glands are soft and do not present a tuberculous appearance.

The right lung is blackened. There are well developed adhesions in the posterior portion of the upper lobe, which has an area of puckering near the apex. On section this is the site of well-marked subpleural consolidation with areas of necrosis. The rest of the upper lobe has nodules of the coal dust type, coal dust cell aggregation in the primary units and marked emphysema. The middle lobe has nodules and emphysema and these are less marked in the lower lobe.

Dissecting Microscope.—This shows well-marked nodulation of the coal dust type and associated emphysema.

Sections.—These show typical nodules of the coal dust type and well-marked emphysema.

Chemical Analysis—

	Milligrammes per gramme of dry lung.
Ash	34·50
Combined silica	2·46
Free silica	2·13
Free carbon	100·0
	Grammes.
Combined silica content of both lungs estimated	0·54
Free silica content of both lungs estimated	0·47
Free carbon content of both lungs estimated	21·9

Diagnosis.—Pneumonokoniosis, coal dust type, massive, and emphysema.

Group.—Coal miners. New South Wales. Western field.

Case No. 89.

The patient was a coal miner aged 65. He worked at the face in Western field coal mines for forty years. He worked in the Oakey Park pit for the last twenty years of his industrial life.

Four years before he died he ceased work, complaining of cough and smothering at night. Seen by a medical board at this time his chest expansion was 1½ inches with no other abnormality detected. He had a rapid pulse and respiration and gave a poor tolerance test response. The radiograph showed bi-lateral nodular fibrosis with early consolidation at each apex; the consolidations at the apices appeared tuberculous. The finding of the medical board was that he had pulmonary fibrosis associated with tuberculosis probably due to the inhalation of the dust of coal mines.

Examination of the Lungs.—The right lung is bulky, mottled black and grey with well developed adhesions over the upper lobe. The bulk of the lung is due to emphysema. On section there are numerous fibrotic nodules of the coal dust type in the upper lobe and an irregular area of black fibrotic consolidation 3 x 4 x 1 cm. The lower and middle lobes have a smaller development of nodular fibrosis. The glands are black and soft.

The left lung presents a similar appearance. There is a smaller irregular consolidation at the apex of the upper lobe.

Dissecting Microscope.—This shows well developed fibrosis with nodulation of the coal dust type, more marked in the upper lobes. There is a marked development of emphysema which is generally associated with the areas of fibrosis.

Sections.—These show well marked massive and nodular fibrosis of the coal dust type and much emphysema. There is no evidence of tuberculosis nor did smears made from the lungs reveal any tubercle bacilli.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	28·35
Combined silica	0·46
Free silica	1·00
Free carbon	86·0
	Grammes.
Combined silica content of both lungs estimated	0·1
Free silica content of both lungs estimated	0·2
Free carbon content of both lungs estimated	20·0

Examination of the Heart.—The descending branch of the left coronary artery shows marked atheromatous changes for 1½ inches of its length. Both branches of the left coronary show slight atheromatous changes. There are no obvious muscle changes.

Diagnosis.—Pneumonokoniosis of the coal dust type, marked, and emphysema. Atheroma of coronary arteries.

Group.—Coal miners, New South Wales, Western coal field.

Case No. 95.

The patient was a coal miner, his age was 56.

He worked in the Western coal field, at Oakey Park for twelve years and at the State coal mine for twelve years. He had previously been an iron worker for eighteen years.

He ceased work four years before his death complaining of shortness of breath and cough. Seen by a medical board the chest expansion was 35-36½ inches, the percussion note was resonant and an occasional rhonchus was heard. The pulse was 100, the arteries not thickened and the cardiac dullness within the nipple line. The sounds were regular and there were no murmurs. The exercise tolerance test was poor. The urine was clear. The radiograph of the chest showed a very early stage of nodular fibrosis. The finding of the board was that there was a non-incapacitating pulmonary fibrosis present which could result from work in coal mines. He resumed work for five months. Seen a year after the first board, his pulse rate was increased and an occasional extra-systole was present, and the urine contained albumin. He was found fit for light work and the incapacitating condition was thought to be due to chronic nephritis. Seen three months before his death he complained in addition to shortness of breath and cough, of occasional " bearing down " pains in chest. The pulse rate was 108 and there was reduplication of the second sound at the apex and an occasional premature systole; the urine was free of albumin; there was no change in the radiographs over the four years excepting that the size of the heart had considerably increased both to the right and the left. The finding of the medical board was an incapacitating cardio-vascular condition which it was not prepared to associate with the pulmonary fibrosis present.

Examination of the Lungs.—The right lung is slightly blackened; on section portion of the upper and lower lobes have non-fibrous consolidation and the bronchi are considerably thickened. There is a generalized but slight coal dust cell deposition with a few small areas of emphysema.

The left lung presents a similar appearance to the right lung but there are well marked adhesions on the medial surface of the lobes and also interlobar adhesions.

Dissecting Microscope.—This shows in both lungs early fibrosis of the coal dust type in the primary units with microscopic nodulation and a small amount of emphysema.

Sections.—These show early fibrosis associated with coal dust cell deposition; the bronchi show thickened walls and there is present considerable oedema of the lungs.

Dr. Tebbutt who examined the heart and kidneys, reported:—

The heart is somewhat enlarged due to dilatation of the left ventricle and slight hypertrophy. The right auricle is slightly dilated, and the right ventricle also shows slight dilatation and hypertrophy, and the chambers of the right side contain a greyish agonal clot. The right and left coronary arteries are stiff and thickened like pipe-stems, particularly the right. The anterior descending branch of the left, as it passes down towards the apex, shows narrowing of its lumen and marked eccentric athero-sclerosis of its wall. I could not see any gross infarction.

Microscopical examination of the apex shows definite increase in fibrous tissue amongst the muscle fibres, and a section of a papillary muscle in the left ventricle shows gross replacement of muscle fibres by fibrous tissue.

Kidneys.—They are not contracted. The capsule strips easily, leaving a smooth surface excepting for several depressions in the cortex. The cortex is not narrowed. Microscopical examination shows some fibrosis of the glomeruli, but no gross nephro-sclerosis.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	29·85
Combined silica	0·48
Free silica	0·48
Free carbon	23·0
	Grammes.
Combined silica content of both lungs estimated	0·10
Free silica ,, ,, ,, ,,	0·10
Free carbon ,, ,, ,, ,,	4·9

Diagnosis.—Myocardial degeneration; Athero-sclerosis of coronary arteries; Pneumonokoniosis of the coal dust type, very early.

Group.—Coal miners, New South Wales, Western field.

CASE NO. 99.

The patient was a coal miner aged 41. He worked only in the Western coal field, for twenty-seven years in the Lithgow Valley Colliery. He complained of shortness of breath and cough for eighteen months before his final illness which lasted one month, and which caused him to cease work. This was diagnosed as broncho-pneumonia. No abnormality was detected in the cardio-vascular system. The radiograph showed a greatly enlarged heart and an early diffuse and nodular fibrosis.

Examination of the Lungs.—The left lung is greyish black and there are some adhesions in the upper lobe. On section there is some deposition of coal dust cells in the primary units with no obvious development of nodules or emphysema. The bronchi are thickened. The glands are soft with white cellular spots. The right lung is greyish black with marked development of adhesions over the upper lobe. On section there is marked coal dust cell deposition in the primary units of all lobes. The bronchi are thickened. There is no emphysema.

Dissecting Microscope.—This shows well marked deposition of coal dust cells in the primary units throughout the lung. There is the earliest stage of nodulation and a very small amount of emphysema. In parts there is pulmonary oedema.

Sections.—These show nodules of the coal dust type, interstitial pneumonia and pulmonary oedema.

Examination of the heart.—The heart weighs 21 ozs. The ventricular walls are thickened but appear healthy. The coronary arteries show no abnormality.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	26·00
Combined silica	1·60
Free silica	0·57
Free carbon	92·0
	Grammes.
Combined silica content of both lungs estimated	0·45
Free silica ,, ,, ,, ,,	0·16
Free carbon ,, ,, ,, ,,	26·0

Diagnosis.—Pneumonokoniosis, coal dust type, moderate.

Group.—Coal miners, New South Wales, Western Field.

CASE NO. 104.

The patient was a coal miner aged 61. He worked in the Western field collieries for twenty-five years and before this was a rural worker. He worked for seventeen years in the State Mine and for eight years in the Zig Zag pit. Seen by a medical board two months before his death he complained of breathlessness for about two years which had got progressively worse, and was very marked before he ceased work six months earlier. He complained of cough with phlegm and could only sleep propped up. There was complaint of loss of weight (two stone in the past year); there had been no night sweats. The pulse was 118 sitting, the apex beat of the heart was in the fifth inter-space one inch outside the nipple line, the percussion note of the chest was flattened with scattered rales throughout both lungs and crepitations in the right lower lobe. The report on the radiograph was "dense consolidation throughout the whole of the left lung with cavitation in the upper lobe. The appearance is strongly suggestive of advanced tuberculosis; the right lung shows well marked diffuse and nodular fibrosis. The heart shadow is enlarged." The finding of the medical board was that there was an incapacitating pulmonary fibrosis probably due to the inhalation of dust in coal mines, and advanced tuberculosis in the left lung. However a fallacy was present here for on the death of this worker two months later there was no marked consolidation of the left lung and it appears that an unresolved pneumonia was responsible for the radiographic appearances seen by the board.

Examination of the Lungs.—The left lung is covered with dense adhesions less marked on the basal surface. On section the upper lobe has a black fibrotic consolidation 3 x 2 x 2 cm. with an area of subpleural emphysematous expansions and a number of nodules of the coal dust type. The lower lobe has in its upper part a moderate development of nodules of the coal dust type, in the lower part merely coal dust cell deposition in the primary units. The bronchi are thickened. The glands are small and show fibrotic changes. The right lung is black. Adhesions are only present over the apex. On section, the upper lobe has a small consolidation about 1½ cm. in diameter and a number of well developed nodules of the coal dust type. There are well marked emphysematous subpleural expansions at the apex of the lung. The middle lobe has a moderate development of nodules of the coal dust type, the lower lobe is solid with pneumonic consolidation. The bronchi are thickened, the glands are hard and necrotic; there is no evidence of tuberculosis.

Dissecting Microscope.—This shows well developed nodules of the coal dust type and a moderate degree of emphysema.

Sections.—These show nodules of the coal dust type, emphysema, and pneumonia of the lower right lobe.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	34·61
Combined silica	2·90
Free silica	0·97
Free carbon	49·00
	Grammes.
Combined silica content of both lungs estimated	0·76
Free silica ,, ,, ,, ,, ...	0·25
Free carbon ,, ,, ,, ,, ...	12·8

Diagnosis.—Pneumonokoniosis, coal dust type, marked, emphysema.

Group.—Coal miners, New South Wales, Western field.

CASE NO. 107.

The patient was a coal miner aged ? For two years before his death he had complained of cough. He got a pain "around his heart" and severe pain in the chest and developed a lobar pneumonia from which he died, seven days later. He had worked as a coal miner in a Western field colliery for twenty years before his death and had done navvying work before this.

Examination of the Lungs.—The right lung is heavily maculated with black areas. On section there are a large number of primary units in the upper lobe with coal dust cell deposition and the emphysema present is confined to them. In the lower lobe there are a smaller number of coal dust cell aggregations with little related emphysema. The glands are not enlarged; a few of the tracheo-bronchial glands show pyogenic changes. The left lung is greyish white in colour with black maculations. Both lungs are solid with pneumonic consolidation. The coal dust cell aggregations are better marked in the upper than the lower lobe.

Dissecting Microscope.—This shows an early development of nodulations of the coal dust type in the primary units with a very little emphysema associated with them, and the mass of the parenchymatous tissue is normal for the most part.

Sections.—These show early development of nodules of the coal dust type with associated emphysema and a section of the glands shows fibrosis approaching the silicotic type. Pneumonic changes are present in the lobes of the left lung.

Examination of the Heart.—The heart weighs 12 ozs. There is some atheroma at the bases of the aortic valves. There is a small patch of atheroma in the right coronary and a well marked atheromatous condition in the left.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	28·50
Combined silica	0·66
Free silica	3·50
Free carbon	30·0
	Grammes.
Combined silica content of both lungs estimated ...	0·29
Free silica content of both lungs estimated	1·5
Free carbon content of both lungs estimated ...	13·2

Diagnosis.—Pneumonokoniosis of the coal dust type, early. Lobar pneumonia. Coronary disease of the heart.

Group.—Coal miners. New South Wales. Western field.

Case No. 109.

The patient was a coal miner aged 63. He worked in Western field collieries for fifteen years, for twelve years in the State mine, for three years in the Cobar tunnel; the rest of his life was spent in bush work.

Examination of the Lungs.—The left lung is maculated with coal dust deposition. The upper lobe has a number of emphysematous bullae. The bullae cover an area of 10 x 5 cm. or more.

On section the upper lobe shows well developed marginal emphysema, some parenchymatous emphysema but no well marked fibrosis of the coal dust type.

The bronchi are thickened. The glands show no marked changes. The lower lobe shows some parenchymatous emphysema not related to coal dust deposition.

The right lung has massive adhesions at the upper part of the upper lobe. On section the upper lobe has an irregular consolidation of the coal dust type measuring 2 x 2 x 6 cm. The remainder of the upper lobe shows a development of parenchymatous emphysema related to the deposition of coal dust but not to the formation of nodules.

The lower lobes and middle lobe show very little emphysema and very little coal dust cell deposition. The bronchi are greatly thickened.

Despite the size of the irregular consolidation in the upper lobe with some association of emphysema, the rest of the lung shows no marked coal dust lesions.

Dissecting Microscope.—This shows that the consolidation at the apex of the right lung is of the coal dust type; the coal dust cell deposition is present in a small number of units with very early nodulation. There is even less coal dust cell deposition in the lower lobe. The emphysema related to this is marked. There is also marginal and parenchymatous emphysema in the lower lobes not related to coal dust cell deposition.

In the left upper lobe there is a small development of coal dust cell deposition in the primary units of the lung with early modulation and well marked associated emphysema. The lower lobes of the left lung show a very little coal dust cell deposition in the primary units with the development of well marked emphysema. There is also marginal emphysema and parenchymatous emphysema not obviously related to coal dust deposition.

Despite the irregular consolidation in the upper lobe of the right lung and the not inconsiderable development of emphysema in the rest of the lung, coal dust deposition is only slight and only a few small nodules of the coal dust type are formed. The emphysema present is apprently largely due to bronchitis. The smaller bronchi are thickened.

Examination of the Heart.—The heart weighs 26 oz. and is very large.

The left ventricle has a greatly thickened wall and the aortic valves are thickened and calcified and thus rigid, incompetent and obstructive. There is atheroma in the aorta close to the valves.

The right ventricle is relatively small, its walls not markedly thickened and the pulmonary valves appear normal. The coronary arteries are large vessels. The left coronary in its descending ventricular branch is occluded with calcification for half an inch, two inches from its origin. The circumflex branch appears normal. The right coronary artery is large but healthy except for an area of calcification two inches from its origin, but it does not occlude the lumen.

Sections.—These show early nodulation of the coal dust type and a large anthracotic consolidation.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	27·4
Combined silica	1·2
Free silica	0·4
Free carbon	29·0
	Grammes.
Combined silica content of both lungs estimated ...	0·36
Free silica content of both lungs estimated	0·12
Free carbon content of both lungs estimated ...	8·6

Diagnosis.—Pneumonokoniosis of the coal dust type. Emphysema and bronchitis. Aortic valvular disease with incompetence and stenosis. Coronary occlusion.

Group.—Coal miners. New South Wales. Western field.

CASE No. 110.

The patient was a coal miner aged 45. He died six years following the examinations detailed below. Seen by a medical board six years before his death he complained of shortness of breath on exertion, and cough; his chest expansion was 32½/34½ inches, with some flattening of the percussion note. The pulse was rapid and response to tolerance test fair. After observation in a hospital for ten days he was considered by the medical board to be affected by tuberculosis. The radiograph at this time showed marked consolidation towards the periphery of both lungs particularly in their mid sections. There was also some consolidation towards the left apex and a cavity in the consolidation at the level of the eighth rib posteriorly. In the opinion of the radiographer the condition was one of advanced anthracosis with no evidence of active tuberculosis. Six years later the same radiographer reported that "the right lung is now collapsed to about a quarter of the normal size. The left side shows an increase in fibrosis, particularly in the middle zone, and to a less degree towards the apex. This shows an attempt at healing. There is, however, a certain amount of active mottling still in the upper lobe."

He worked in the Western coalfield pits only; at Cullen Bullen wheeling for eight years, at Bolden mining for seven years, at Wallerawang mining one year and on the screens seven years.

Examination of the Lungs.—The right lung is very much reduced in size, collapsed and mutilated. There are three giant bullae developed towards the base measuring up to 5 cm. in length. The upper lobe is collapsed, and has a large anthracotic consolidation which is excavated apparently by tuberculous process. The lower lobe has a large black cavity. The middle lobe has a huge bulla with some more or less normal lung tissue. The left lung is covered with adhesions, massive over the upper part which is much mutilated. It is adherent to the pericardium. The upper lobe is partly collapsed; it is the site of a black mass of honeycomb appearance resembling cavitation of black anthracotic consolidation. There are also black consolidations of small size. The lower lobe has some irregular black consolidation but a large portion shows little change due to coal dust.

Dissecting Microscope.—The lungs show changes probably due to anthracotic consolidation and in part to infection. Except for the excavated consolidations the changes due to coal dust are slight.

Sections.—These show massive and excavated fibrosis of the infective and coal dust type.

Smears made from the lungs revealed no tubercle bacilli.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	23·65
Combined silica	1·63
Free silica	0·94
Free carbon	14·00
	Grammes.
Combined silica content of both lungs estimated	0·38
Free silica content of both lungs estimated	0·22
Free carbon	3·3

Remarks.—The cavitation has probably considerably reduced the amount of dust found in the lungs by analysis.

Diagnosis.—Pneumonokoniosis, coal dust type, massive. Tuberculosis?

Group.—Coal miners. New South Wales. Western field.

CASE No. 116.

The patient was a coal miner aged 54; two years before his death he was seen by a medical board. He complained of shortness of breath for the past two years and had ceased work from this cause for the past six months. He complained of cough and had to sleep propped up. He had lost weight, 2½ stone in the past two years.

The radial arteries were thickened and tortuous; blood pressure, 155/90. Chest expansion, 1¾ inches. He gave a good response to an exercise tolerance test. The urine showed a heavy cloud of albumin. The radiograph showed a well-marked diffuse and nodular fibrosis distributed throughout both lungs with areas of early consolidation in middle zone of right lung. There is a probable hydatid of liver.

The medical board found that there was a partially incapacitating pulmonary fibrosis (50%) probably due to the inhalation of dust in coal mines and a further incapacitating (50%) cardio-renal disease.

He worked in the Western coalfield in the Lithgow valley pit for twelve years and in the Portland (Main Range) for five years. He was for twenty years a rural worker.

Examination of the Lungs.—The left lung is mottled black with some inter-lobar adhesions and there are small emphysematous bullae at the apex. On section there are in the upper lobe a considerable number of primary units with coal dust cell deposition and nodulation not associated with emphysema. The nodules which measure from 1 to 4 mm. are mostly discrete. The glands are enlarged with a white fibrous network and are partly calcareous. The bronchi are much thickened.

The right lung presents a similar appearance of maculation. The development of nodules of the coal dust type is similar to that seen in the left lung. There is a small consolidation at the base of the upper lobe. The lower lobe has fewer nodules than the upper but they are still numerous. The bronchi are much thickened and the glands partially calcareous.

Dissecting Microscope.—There is well developed nodulation of the coal dust type in the upper lobes. There is a similar condition in the lower lobes but this is not so marked. There is practically no development of the emphysema so commonly associated with nodules of the coal dust type. The nodules are of a discrete type.

Sections.—These show nodules of the coal dust type associated with a little emphysema.

Examination of the Heart.—The heart weighs 15 ozs. The coronary arteries are thickened; there is a small patch of atheroma one inch from the aortic orifice in the right coronary artery and general atheroma along the course of the artery. There is a small patch of atheroma at the origin of the left circumflex coronary artery. There is no obvious abnormality of the valves and muscles.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	37·07
Combined silica	2·10
Free silica	3·70
Free carbon	40·0
	Grammes.
Combined silica content of both lungs estimated	0·48
Free silica content of both lungs estimated	0·84
Free carbon content of both lungs estimated	9·1

Diagnosis.—Pneumonokoniosis, coal dust type, marked.

Group.—Coal miners. New South Wales. Western field.

COAL MINERS—NEW SOUTH WALES.

NORTHERN COALFIELD.

CASE Nos. 101, 106.

Case No. 101.

The patient was a coal miner aged 62. He worked for forty seven years in pits of the Northern coal field, first in the Sea Pit and then in Hebburn so that he worked about equally in the upper and lower coal measures. He became dyspnoeic and died with an abscess of the lung.

A radiograph taken shortly before death shows early diffuse and nodular fibrosis of both lungs and a consolidation with a cavity in the lower right zone.

Examination of the Lungs.—The right lung is covered with adhesions of a purulent nature. On section there is a moderate development of coal dust cell deposition in certain primary units without any obvious emphysema. What is taken to be the lower lobe has a caseous consolidation of 4 x 3 x 3 cm. containing an abscess cavity full of purulent material. A smaller cavity in this caseous consolidation is full of haemorrhagic debris. The glands are black, rubber-like with white fibrous areas.

The left lung is grey with mottled black areas. At the base of the upper lobe are a few sago grain and a few are also seen in the upper portion of the lower lobe. There is coal dust cell deposition in a number of the primary units with obvious emphysema. The large bronchi appear thickened. The glands are similar to those of the right lung.

Dissecting Microscope.—In the right lung there is a moderate development of early coal dust nodules and little emphysema; in the left lung there is more emphysema.

Examination of the Heart.—The heart weighs 18½ oz. The left ventricle is enlarged with hypertrophied muscle wall, easily admits three fingers. There is marked atheroma of the aorta. Coronary arteries are well developed, not thickened unduly, and there is no evidence of atheroma or thrombosis.

Sections.—These show few evidences of changes due to dust. There is chronic interstitial pneumonia and abscess formation.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	63·70
Combined silica	7·90
Free silica	4·65
Free carbon	19·00
	Grammes.
Combined silica content of both lungs estimated	1·35
Free silica content of both lungs estimated	0·79
Free carbon content of both lungs estimated	3·24

Diagnosis.—Pneumonokoniosis, coal dust type, early, and early emphysema, lung abscess, and chronic interstitial pneumonia.

Group.—Coal miners, New South Wales, Northern field.

Case No. 106.

The patient was a coal miner aged 45 years. He was treated for asthma some months before his death. On the day of his death after filling two skips of coal he felt cold and clammy and walked out quite a distance to the ambulance room of the pit. Asked how he was, he in a jocular manner said "Nearly dead"; shortly afterwards he got up and fell and died immediately. At the post mortem a coronary embolism was found.

He worked for over twenty-five years in coal mines of the Greta measures of the Northern field.

Examination of the Lungs.—The right lung is greyish black. There is a little puckering and pleurisy at the apex of the upper lobe. There is a small subpleural consolidation of the usual blackened character half a centimetre in diameter. On section the lung shows slight changes from normal.

The left lung presents a similar appearance without the puckering or subpleural consolidation. The glands are soft and not enlarged.

Dissecting Microscope.—This shows a lymphatic spread of coal dust cells with a very early aggregation at the site where such nodules develop in the primary units. Microscope sections show very early nodules of the coal dust type.

Examination of the Heart.—The heart weighs 16 ozs. There is some atheroma in the aorta, and the left coronary artery. The right coronary has a marked area of atheroma which was the site of a thrombus or embolism found at the post-mortem examination.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	36·13
Combined silica	0·72
Free silica	1·02
Free carbon	30·40
	Grammes.
Combined silica content of both lungs estimated	0·10
Free silica ,, ,, ,, ,, ...	0·14
Free carbon ,, ,, ,, ,, ...	4·2

Diagnosis.—Pneumonokoniosis of the coal dust type, very early. Coronary embolism.

Group.—Coal miner, New South Wales, Northern field, lower measures.

COAL MINERS—NEW SOUTH WALES.

GENERAL.

CASE No. 105.

The patient was a coal miner aged 57. He worked in the Airley Shale mine for four years cleaning and water baling, and in the Budgery Copper Mine for one year trucking and mullocking. He worked in pits in the Southern coal field for five years and for fourteen years in a Western field pit (Hermitage) at the coal face. The rest of his life he did rural work. Seven years before his death he was seen by a medical board. He complained of shortness of breath and a cough with sputum. Rhonchi were found in both lungs, the chest expansion was two inches and the apex beat of the heart was within the nipple line. The radiographer reported that the radiograph showed pneumonokoniosis with superadded apical tuberculosis, pleural adhesions of the left base and some dilated bronchi in the lower lobe. This medical board found that his condition was one of silicosis and that he was unfit.

Examination of the Lungs.—The left lung is intensely black and covered with adhesions chiefly at the base and upper zone. On section the upper lobe of the lung has a clean walled cavity crossed by fibrous strands; this cavity is about 6 x 5 x 5 cm. In the lower lobe there is another cavity, 4 x 3 x 2 cm. filled with black fluid. The whole substance of the lung is intensely black. Definite nodules of fibrotic nature can be palpated but are best discerned with the dissecting microscope. The glands are soft and not enlarged. There is an emphysematous bulla above the cavity of the upper lobe. What remains of the substance of the upper lobe of the lung presents the same appearance as the lower lobe. There is a general development of marked emphysema in both lobes.

The right lung is intensely black. There is a mass of adhesions of the upper lobe and the development of emphysematous bullae medially and at the base. On section the lung is intensely black, the upper lobe has a highly necrotic cavity and some massive consolidation not excavated. This area comprises half the upper lobe. There is also at the base of the upper lobe a smaller consolidation 2 cm. in diameter filled with inky fluid, and a smaller subpleural consolidation of the coal dust type. The middle and lower lobes have palpable nodules of the coal dust type and moderate emphysema. The glands are soft and not enlarged; the bronchi are much thickened. No tubercle bacilli could be found in the smears made from the lung.

Dissecting Microscope.—There is considerable development of nodules of the coal dust type and also of emphysema.

Sections.—These show fibrotic nodules and consolidation of the coal dust type and emphysema.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	27·80
Combined silica	2·25
Free silica	0·94
Free carbon	97·70
	Grammes.
Combined silica content of both lungs estimated	0·59
Free silica ,, ,, ,, ,, ...	0·25
Free carbon ,, ,, ,, ,, ...	25·70

Diagnosis.—Pneumonokoniosis of the coal dust type, massive and emphysema.

Group.—Coal miners, New South Wales.

COAL MINERS.

BRITISH AND AUSTRALASIAN.

CASE Nos. 96, 103, 119.

CASE No. 96.

The patient was a coal miner aged 52. He died from cardiac failure and had no previous complaints before his last illness.

He worked for ten years in English mines and for twelve years in the coal mines of the Western field. The rest of his life was spent in the Army.

Examination of the Lungs.—The left lung is greyish with black maculations. There are some well developed interlobar and basal adhesions. On section there is fairly even distribution of coal dust deposition in the primary units with no obvious emphysema. The glands are small, soft and black; the bronchi are thickened.

The right lung is greyish with black maculations, with some adhesions anteriorly in the lower lobe. On section there is an early uniform development of coal dust cell deposition in the primary units with little development of emphysema. In one plane of the upper lobe of the left lung there appear to be 90 primary units showing coal dust cell deposition.

Dissecting Microscope.—This shows early development of nodules of the coal dust type associated with very little emphysema.

Sections.—These show early nodules of the coal dust type.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	24·77
Combined silica	1·54
Free silica	1·65
Free carbon	53·00
	Grammes.
Combined silica content of both lungs estimated	0·25
Free silica ,, ,, ,, ,, ,, ...	0·26
Free carbon ,, ,, ,, ,, ,, ...	8·5

Diagnosis.—Pneumonokoniosis of the coal dust type, early.

Group.—Coal miners, British and Australian.

CASE No. 103.

The patient was a coal miner aged 54. He died suddenly from coronary embolism. He worked in Wales, Great Britain in the Ocean Coal Co., Rhondda Valley for twenty-eight years, in a New Zealand coal mine for one year and in the Richmond Main pit, Northern coal field, New South Wales, for seven years. He was seen by several medical boards, the last three years before his death. Apart from a rapid pulse no abnormality was detected and he was considered as fit for all but the heaviest forms of work. The radiograph showed diffuse and early nodular fibrosis of both lungs.

Examination of the Lungs.—The left lung is covered with adhesions well developed on the posterior surface. It is greyish black in colour. On section there is a small number of primary units showing coal dust cell deposition with the earliest development of nodulation and no obvious emphysema. The glands are soft and not enlarged; the bronchi are thickened.

The right lung presents a similar appearance but there are only a few adhesions at the base; the glands are enlarged. The lower and middle lobes contain very few units showing coal dust cell deposition.

Dissecting Microscope.—This shows coal dust cell deposition with early nodulation and a little emphysema related to these units. In the lower lobes there is very little change from the normal.

Sections.—These show early nodulation of the coal dust type, changes due to chronic interstitial pneumonia and emphysema; the glands show infective changes.

Examination of the Heart.—The heart weights 18 ozs. There is a small amount of atheroma of the aorta. The left coronary artery is thickened with atheroma and is occluded by old and recent clot at the aortic orifice. The two main branches have atheroma and are blocked by emboli. The right coronary is also atheromatous.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	43·77
Combined silica	4·72
Free silica	0·38
Free carbon	47·0
	Grammes.
Combined silica content of both lungs estimated	1·3
Free silica ,, ,, ,, ,, ,, ...	0·1
Free carbon ,, ,, ,, ,, ,, ...	13·3

Diagnosis.—Pneumonokoniosis coal dust type, early. Coronary embolism.

CASE No. 119.

The patient was a coal miner aged 69. He died in the year 1939. He came from Scotland in 1911 and he worked in the Metropolitan pit, Southern field, for twenty two years.

He was admitted to hospital complaining of extreme breathlessness for six weeks and cough without sputum for one week. He had had palpitation and noticed that his feet were swollen. At autopsy the right ventricle was found hypertrophied and the pulmonary artery atheromatous.

Examination of the Lungs.—The right lung is covered on the postero-lateral and medial aspects with very dense adhesions. On the lateral and antero-medial aspects there are less well developed adhesions. On section the three lobes are intensely black. The upper lobe is mainly a large black consolidation of the coal dust type with a small ramifying cavity. This consolidation is about 10 x 6 x 7 cm.

The small amount of the upper lobe which is unconsolidated has many fibrotic nodules of the coal dust type with relatively little associated emphysema. The middle lobe has a similar development of nodules and emphysema. The lower lobe is chiefly the site of a large black fibrotic consolidation of the coal dust type measuring 8 x 6 x 7 cm. and there is a small central area of cavitation. The rest of the lower lobe is filled with nodules of the coal dust type with relatively little development of emphysema.

The left lung is blackened. At the apex are two tags of well developed adhesions. Some organised white plaques of tissue on the lateral aspect are related to the underlying consolidations. There are moderately developed adhesions at the base of the upper lobe, in the inter-lobar fissure and at the base of the lower lobe. On section the lung is densely black. The upper lobe is the site of an irregular consolidation measuring 11 x 4 x 6 cm. This has a series of small cavitations probably anthracotic and not tuberculous. The remainder of the upper lobe has numerous small nodules of the coal dust type not associated with obvious emphysema to the naked eye. The lower lobe has an irregular elongated consolidation or series of consolidations on the subpleural lateral area. This area of fibrotic consolidations measures 11 x 4 x 2 cm. There is also a small consolidation at the base of the lower lobe about 2 cm. in diameter which has a small anthracotic cavity.

There is some well marked marginal emphysema at the base of the lower lobe.

The bronchi of both lungs are thickened. Smears made from the lining of both cavities showed no tubercle bacilli.

Dissecting Microscope.—The consolidation of the upper lobe of the right lung appears to be of the coal dust type. The unconsolidated portion of this lobe contains many nodules in the primary units of the lung (i.e. two or three respiratory bronchioles and associated air sacs) which are associated with marked but not gross emphysema. The middle lobe appears similar to the unconsolidated portion of the upper lobe. The consolidation of the lower lobe has a few nodules which are probably silicotic and are to be seen near the pleural surface, but the bulk of the consolidation is a fibrosis of the coal dust type.

The portion of the lower lobe unaffected by fibrotic consolidation has numerous nodules of the coal dust type with a moderate development of the emphysema usually associated with this type of nodulation

The consolidation of the upper lobe of the left lung is of the coal dust type. The rest of this lobe has numerous nodules of the coal dust type associated with well marked but not gross emphysema. The consolidation of the lower lobe presents the appearance of a fibrotic consolidation due to coal dust. The rest of this lobe contains numerous nodules of the coal dust type associated with the characteristic emphysema.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	87·44
Combined silica	22·50
Free silica	7·15
Free carbon	120·00
	Grammes.
Combined silica content of both lungs estimated	7·7
Free silica ,, ,, ,, ,, ,, ...	2·4
Free carbon ,, ,, ,, ,, ,, ...	40·9

Remarks.—These lungs are a very fine example of massive consolidation in a coal miner's lung. It is rare to find the lower lobes with consolidation of this degree. Although there is well developed emphysema associated with the coal dust nodules, this is not as gross as is generally found and probably explains this man's longevity.

Diagnosis.—Pneumonokoniosis of the coal dust type, massive, and emphysema.

Group.—Coal miners, British and Australian.

COAL AND METAL MINERS.

CASE Nos. 83, 88, 97, 111, 114, 118, 120.

CASE No. 83.

The patient was a coal and metal miner; he was aged 66. He had not worked for six years before his death. He was metal-mining at Bodangara and Mt. Boppy for sixteen years and coal mining at Oakey Park, a Western field colliery for eleven years.

Examination of the Lungs.—The left lung is covered with dense adhesions. The upper lobe is grossly consolidated, and is the site of a great ramifying cavity which has eroded the massive consolidation. The walls of the cavity are not roughened and the cavitation is a tuberculous one. The glands are enlarged and black, with areas suggesting tuberculous caseation. The lower lobe has well-developed, nodulation of the coal-dust type with a fairly large consolidation at its base, showing a ramifying caseation which is tuberculous. (Smears from this caseation show tubercle bacilli). There is a moderate development of emphysema in this lower lobe.

The right lung, which is covered with fairly well-developed adhesions, shows on its surface a number of areas which may be sago grains. The upper lobe has a large consolidation without a nodular basis, which contains a cavity 2 x 2 x 2 cm. filled with gelatinous substance; smaller cavities, also filled with gelatinous secretion, are in communication. There are smaller irregular and some nodular consolidations and some large fibrotic nodules in this upper lobe, which has also at its base a greyish area (? tuberculous caseation). The tracheo-bronchial gland is enlarged. The middle lobe has a few small consolidations and a number of black fibrotic nodules. The lower lobe has a number of black fibrotic nodules and coal-dust aggregations, and, in places, well-developed emphysema.

Dissecting Microscope.—The dissecting microscope shows fibrosis, partly of the siliceous type. There are areas resembling tuberculous caseation, and, in parts, well-developed emphysema.

Sections.—Sections show massive fibrosis, mostly of the siliceous type with a small amount of fibrosis of the coal-dust type with tuberculous changes.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	49·30
Combined silica	8·00
Free silica	7·90
Free carbon	38·50
	Grammes.
Combined silica content of both lungs estimated	3·5
Free silica ,, ,, ,, ,, ,, ...	3·5
Free carbon ,, ,, ,, ,, ,, ...	17·0

Diagnosis.—Pneumonokoniosis siliceous type, massive and tuberculosis. Pneumonokoniosis coal-dust type moderate.

Group.—Coal and Metal Miners.

CASE No. 88.

The patient was a coal miner aged 70. His medical attendant at his last illness reported that he died from a coronary fibrosis, and that he found at a post-mortem examination the coronary vessels practically occluded throughout their extent, and the pleural cavities containing a good deal of fluid.

Until the age of forty he did rural work. He worked for two or three years in gold mines before he commenced coal mining. He worked in a pit in the Southern coal field for seventeen years; he was a shiftman and cleaned out gobs and stone bottoms and opened up new places. He was seen by a medical board three months before he died.

The radial arteries were thickened, the heart was enlarged and there were frequent premature systoles. B.P. 160/105. Chest expansion, 2½ inches. The breath sounds were harsh vesicular with fugitive rhonchi. There was albumin in the urine. There was complaint of cough and shortness of breath. The radiograph shows a generalised fine to early nodular fibrosis with consolidations present in the right upper and middle lobes, and an elongated consolidation on the medial aspect of the left upper lobe. The heart is considerably enlarged. The finding of the board was that there was a total incapacity for work, one-third of which was due to the inhalation of dust in coal mines and two-thirds to an incapacitating cardio-vascular condition which was not due to the pulmonary fibrosis.

Examinations of the Lungs.—The left lung is greyish black. There are a few sago grains on the surface of lower lobe and a depressed area the site of an underlying consolidation on the lateral surface of the upper lobe. On section this consolidation is 5 x 1 x 4 cm.; there are a few nodules of the silicotic type 1 to 2 mm. in diameter. There is some fine generalised emphysema.

The right lung is greyish black. There are one or two sago grains in the upper lobe and an organised white patch the site of an underlying consolidation. On section the upper lobe has a greyish black consolidation which runs in the long axis of the lung; it is cylindrical in shape and 3 cm. thick and 8 cm. long. The central part of this consolidation has an area of necrosis. The middle lobe has a consolidation which is 1½ x 2 x 1½ cm. There are a few nodules of the silicotic type in the upper lobe which are 4–5 mm. in diameter. The glands are not enlarged.

Dissecting Microscope.—The consolidations and fibrotic nodules are of the silicotic type; there is very little coal-dust cell deposition. There is a small amount of emphysema.

Sections.—These show fibrotic consolidations and nodules of the silicotic type.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	53·10
Combined silica	5·40
Free silica	6·60
Free carbon	11·00
	Grammes.
Combined silica content of both lungs estimated	1·2
Free silica ,, ,, ...	1·4
Free carbon ,, ,, ...	2·4

Diagnosis.—Pneumonokoniosis siliceous type, moderate; coronary thrombosis.

Group.—Coal and Metal Miners.

CASE No. 97.

The patient was a coal miner aged 57. He had worked in mines in South Africa for four years as a timberman and for 31 years in various pits on the Northern Field; for the last 8 years he was a shiftman in the Maitland Main Colliery. He died following a cerebral haemorrhage. He complained of dyspnoea and cough for several years before his death.

Examination of the Lungs.—The right lung is greyish black with well marked adhesions of the upper and middle lobe, and a few small bullous emphysematous patches. On section in the upper lobe there is a dense black consolidation with a necrotic centre; it measures 6 x 5 x 4 cm. There is also a smaller consolidation in the upper part of the lower lobe which measures 1½ x 3 cm. and has a necrotic centre. There is very little coal dust cell deposition in the primary units so that apart from the consolidations there is little dust accumulation and development of nodules of the coal dust type. There is a moderate development of emphysema in both lobes, marginal in type in the upper lobe where it goes on to a bullous character, but related to the primary units in the lower lobe.

The appearances of the left lung are similar to the right lung. There are consolidations in the upper and lower lobes with necrotic centres slightly smaller than those of the right lung.

The coal dust cell deposition is similar to that seen in the right lung but there is less development of emphysema. There is oedema of the lower lobe.

Smears from the centre of the right consolidation and the hilar glands of both lungs did not reveal the presence of tubercle bacilli.

Dissecting Microscope.—This shows fibrotic consolidations and an early stage of nodulation of the coal dust type associated with the emphysema seen in coal miner's lung moderately developed; there is also marginal emphysema.

Sections.—The sections of both lungs show marked development of infective fibrotic tissue with an occasional whorled nodule indicating a silicotic basis, marginal emphysema and oedema of the lungs with a few areas of coal dust cell aggregation.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	38·20
Combined silica	2·62
Free silica	1·82
Free carbon	11·00
	Grammes.
Combined silica content of both lungs estimated	0·57
Free silica ,, ,, ...	0·40
Free carbon ,, ,, ...	2·40

Remarks.—The features of these lungs are the development of large consolidations which are blackened and have necrotic centres, together with a slight development of fibrosis of the coal dust type elsewhere, and the presence of relatively small amounts of siliceous matter and coal dust in the lungs. It is probable that the consolidations resulted more from infection than from dust.

Diagnosis.—Pneumonokoniosis, siliceous type.

Group.—Coal and Metal Miners.

CASE No. 111.

The patient was a coal miner aged 63. He left England in 1912 and died in 1939. He worked in the Broken Hill metalliferous mines for six years and for the last twenty years of his life in collieries in the Southern coal field. He died from an acute attack of pneumonia and pulmonary oedema.

Examination of the Lungs.—The right lung is greyish and shows well developed pleural adhesions, generally distributed, with sago grains in the upper lobe. On section the upper lobe is solid with congestion and oedema. It has a number of nodules of the silicotic type and a small fibrotic consolidation at the base. The lower lobe is solid with grey hepatisation of pneumonia which outlines a few nodules, mainly of the silicotic type. There is some development of fibrosis of the silicotic type, particularly nearer the base. The middle lobe shows a similar condition.

The left lung is greyish and is covered with adhesions, apparently recent, and of purulent nature; at the apex there are some older adhesions. The upper lobe is, except at the apex, solid with oedema or pneumonia or both. The lower lobe is quite solid with oedema or pneumonia or both. A large number of emphysematous expansions up to one or two millimetres in diameter are filled with exudate. There is some early pneumonokoniosis of the coal dust type in both lobes, and there is some better defined silicotic fibrosis.

Dissecting Microscope.—In the right upper lobe there is marked pneumonic or oedematous consolidation, with areas of pneumonokoniosis of mixed type, with emphysema. Sub-pleurally there are a few silicotic nodules. The lower lobe shows well developed emphysema and some development of pneumonokoniosis of a mixed type and marked oedema or pneumonia. The right lung shows marked oedematous or pneumonic consolidation with development of pneumonokoniosis of a mixed type; as well as this there are some nodules presenting the appearance of silicotic nodules.

Examination of the Heart.—The heart weighs 12 oz. The right coronary artery is clear. In the left coronary artery there is a small patch of atheroma in the circumflex branch ½ inch from the aortic orifice. The artery is not occluded. There is a small patch of atheroma in the aorta and on the aortic cusps. There is no obvious abnormality of the heart muscle or valves.

Sections.—There is a moderate development of fibrous tissue partly of the silicotic and partly of the coal dust type; there is well developed emphysema and the cavities are filled with exudate. There is pneumonic consolidation in all lobes; the distribution is patchy and where the pneumonic consolidation has not developed the lung is solid with congestion and oedema.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	33·10
Combined silica	7·20
Free silica	0·20
Free carbon	50·00
	Grammes.
Combined silica content of both lungs estimated	2·20
Free silica ,, ,, ...	0·06
Free carbon ,, ,, ...	15·40

Diagnosis.—Pneumonokoniosis of the siliceous and to a less extent of the coal dust type, marked with emphysema. Pneumonic and oedematous consolidation of all lobes.

Group.—Coal and Metal Miners.

CASE No. 114.

The patient was a coal miner aged 58. He worked in collieries of the Western field for twenty-nine years and in a metalliferous mine at Cobar for two years before coal mining. The rest of his life was spent in rural work.

Following an accident in 1935 he was off work for several years and on resuming he carried on with the assistance of his son. He ceased work in April, 1939, owing to breathlessness on exertion. He could only sleep in an upright position.

Dr. Ternes reports on June 30th, 1939: "About two months ago Mr. consulted me with a complaint of shortness of breath and weakness of such a degree that he could no longer work. He had also persistent cough and sputum. I diagnosed pulmonary fibrosis and myocarditis and had an X-ray taken which I thought confirmed this.

I saw him several times subsequently and his condition was steadily getting worse and on one occasion he complained of pain around the lower margin of his chest anteriorly. I saw him on May 27th when he was much worse. Breathless and coughing persistently and slightly strange mentally. I then sent him into hospital. His mental condition became worse, his speech became thick and indistinct, he had a cloud of albumen in his urine and I thought he might be suffering from uraemia. However, a test performed revealed a blood urea of only 64 mg.

His speech and mental condition improved slightly after about a week. However he was still coughing a lot; had congestion at the bases of both lungs and finally, on June 13th, he became comatose and died. He did not at any time reveal any sign of intracranial disease, nor did he have any vomiting or complain of headache. There was never any sign of jaundice."

Examination of the Lungs.—The left lung is covered with adhesions especially at the apex where a consolidation can be felt. On section there is a sub-pleural consolidation 6 x 10 x 20 mm. There is at the base of the lower lobe a black consolidation about 30 x 20 x 40 mm. which on section presents the appearance of a new growth. The glands are enlarged. The lower glands on section are filled with a whitish material more suggestive of a new growth than of tuberculosis.

The right lung presents a similar appearance, but there is only a small consolidation at the apex of the upper lobe. The deposition of coal dust cells and emphysema is marked through all lobes. There are few large coal dust nodules in the lower lobes. The bronchi are very much thickened. The glands are enlarged and present the appearance of new growth.

Sections.—These show well marked pneumonokoniosis of the coal dust type; emphysema, pneumonia and new growth are also present. Sections from both a right and left gland and from a pneumonic patch at the base of the left lung showed extensive involvement with carcinoma. Sections of the pancreas show the presence of extensive carcinoma. Chronic interstitial changes are present in the surrounding pancreatic tissue. Sections of the kidney show an area of infarction, with intense congestion of the surrounding kidney tissue.

Dr. Morgan, Principal Microbiologist, advises that in his opinion the primary site of this growth was the pancreas.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	58·77
Combined silica	4·65
Free silica	9·70
Free carbon	43·00
	Grammes.
Combined silica content of both lungs estimated	1·20
Free silica ,, ,, ...	2·60
Free carbon ,, ,, ...	11·00

Diagnosis.—Pneumonokoniosis of the coal dust type, marked, and emphysema. Carcinoma of pancreas and lung.

Group.—Coal and Metal Miners.

CASE No. 118.

The patient was a coal miner aged 61. While being treated in hospital for an abscess of the leg he collapsed and died. He had worked in Western field collieries for fourteen years and may have worked in metalliferous mines.

Examination of the Lungs.—The right lung is covered by adhesions over the middle of the lower lobe. Portion of the lower lobe has been torn away from adhesions and is considerably mutilated. There are a small number of maculated black areas and a few large sago grains on the remaining surface of the lung.

On section the upper lobe has a number of nodules, from 2 to 3 mm. in diameter and to the touch they are more of the silicotic than the coal dust type. There is no emphysema.

The lower lobe has a smaller number of fibrotic nodules in its upper part. The glands are small and black.

The left lung has on its surface a small number of black maculated areas on the upper lobe and a few large sago grains on the lower lobe. On section the upper lobe has a small number of black fibrotic nodules from 1 to 2 mm. in diameter. The lower lobe has in its upper part fewer fibrotic nodules; neither lobe shows any emphysema.

Dissecting Microscope.—The right upper lobe shows nodules of the coal dust type, not associated with emphysema and not numerous. The lower portion of the lobe is oedematous. The right lower lobe shows similar but more discrete nodules of the coal dust type; there is no emphysema but the lobe is oedematous.

The left lung shows similar but less marked nodulation. Both lobes are oedematous but there is no emphysema.

While the nodules are described as of the coal dust type, there is found in them a density and lack of emphysema that suggests that histological sections and chemical analysis may reveal a silicotic factor.

Examination of the Heart.—The heart weighs 20 ounces. The left ventricular wall is thickened, there is atheroma at the base of the aortic cusps and round the orifices of the coronary arteries. The atheroma of the aorta is calcareous and raised in vegetative masses, and the bases of the aortic cusps are calcified. The right coronary artery is thickened; there are patches of atheroma along its course. The left coronary—the circumflex branch has general atheroma with calcification in places; the descending inter-ventricular branch is occluded with calcification towards its distal end.

Sections.—These show that the nodules found are more of the siliceous than the coal dust type.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	23·27
Combined silica	0·78
Free silica	1·12
Free carbon	10·50
	Grammes.
Combined silica content of both lungs estimated	0·13
Free silica ,, ,, ...	0·19
Free carbon ,, ,, ...	1·80

Diagnosis.—Pneumonokoniosis, siliceous type, early. Atheroma and occlusion of coronary arteries.

Group.—Coal and Metal Miners.

CASE No. 120.

The patient was a coal miner aged 68. He worked in a Western field pit as a coal miner underground, and on the screens for six years, and for an equal term on the surface, and he had previously worked as a quartz miner for two years and as a battery attendant dealing with wet material for twelve years; for seven years he did surface work at a metalliferous mine and railway navvying.

He was examined by a medical board five years before his death. He complained of shortness of breath. The chest expansion was 2 inches. The percussion note was impaired at the right apex. The radiograph of his chest showed an enlarged nodulation approaching consolidation in both upper lobes and a similar less marked condition in the lower zones, with pleural thickening in both axillae.

Examination of the Lungs.—The left lung is greyish in colour. The upper lobe is covered with dense adhesions. There are a few adhesions in the lower lobes and numerous large sago grains. On section the upper lobe is mainly the site of a large irregular consolidation 8 x 3 x 3 cm. This consolidation is densely black and there are small irregular cavities in it. The unconsolidated portion of the upper lobe contains nodules which are probably silicotic. It is emphysematous and there are a few marginal bullae about 1 cm. in diameter. The lower lobe contains a number of nodules, mainly subpleural, which appear to be of a silicotic type. There is an excavated black consolidation in the upper part of this lobe 2 x 2 cm. There is some coal dust cell deposition and a slight amount of parenchymatous emphysema. The bronchi are much thickened. The glands are calcified and have necrotic centres.

The right lung is greyish black in colour with a black fibrotic consolidation at the apex of the upper lobe 5 x 4 x 3 cm. in size which has an irregular cavitation in its upper part. In the rest of the upper lobe there are a number of nodules, apparently silicotic, and a little coal dust cell deposition. The middle lobe has coal dust cell deposition and early nodulation of the coal dust type. The lower lobe has a small number of nodules of the silicotic type, mainly subpleural, some coal dust cell deposition and early nodulation of the coal dust type. There is a little parenchymatous emphysema in all lobes. The bronchi are much thickened.

Dissecting Microscope.—This shows the consolidations to be of the silicotic type; the nodules present are some of the coal dust and some the silicotic type. There is general but not marked parenchymatous emphysema.

Examination of the Heart.—The heart weighs 10 oz. The muscle and valves appear normal except that there is some atheroma at the base of the aortic valves. There is marked atheroma in the left coronary artery.

Sections.—These show fibrosis, mainly of a modified siliceous type, with little evidence of response to coal dust cell aggregation.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	56·2
Combined silica	13·8
Free silica	9·9
Free carbon	14·3
	Grammes.
Combined silica content of both lungs estimated	2·9
Free silica ,, ,, ...	2·1
Free carbon ,, ,, ...	3·0

Diagnosis.—Pneumonokoniosis, siliceous type, marked.

Group.—Coal and Metal Miners.

MISCELLANEOUS WORKERS—COAL MINES.

CASE Nos. 82, 90, 92.

CASE No. 82.

The patient worked as a pit-top labourer at the Metropolitan Pit, Southern field, for 28 years; he did no underground work. He was aged 60 years.

The cause of death was given by his medical attendant as emphysema and chronic bronchitis. Seen by a medical board eight years before his death, he complained of shortness of breath and debility. His chest expansion was ¾ inch, and the breath sounds were deficient generally. The radiograph showed general increase in linear markings and massive adhesions at each base with fixation of diaphragm. Seen again six years before his death he had a further complaint of breathless attacks at night. He was dyspnoeic on exertion, blood pressure 145/100, arteries were not thickened. The finding of the medical board was that "The increase of fibrous tissue in the lungs has not reached a stage where a diagnosis of pneumonokoniosis can be made. The asthmatical attacks may or may not be related to his work."

Examination of the Lungs.—The left lung is greyish with generalised adhesions. On section there is some coal dust cell aggregation in the primary units with slight development of nodules and a mild degree of emphysema.

The right lung shows a condition similar to that of the left lung but there are a few consolidations about 1 centimetre in diameter at the base of the upper lobe. The lower lobe appears oedematous and pneumonic.

Examination of the Heart.—There is some atheroma at the base of the aorta and a few small patches in both coronaries.

Dissecting Microscope.—Under the dissecting microscope there is seen early fibrosis of the coal dust type in some of the primary units, with early nodulation and some associated emphysema. The right lower lobe shows pneumonic changes.

Sections.—Sections show nodules of the coal dust type and emphysema.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	28·60
Combined silica	6·10
Free silica	0·41
Free carbon	53·00
	Grammes.
Combined silica content of both lungs estimated	1·10
Free silica ,, ,, ...	0·07
Free carbon ,, ,, ...	9·10

Diagnosis.—Pneumonokoniosis, coal dust type, early; emphysema, and pneumonia.

Group.—Miscellaneous Workers, Coal Mines.

CASE No. 90.

The patient was a coal miner aged 59. He is stated to have died from acute myocarditis and arteriosclerosis.

He is stated to have worked on the surface of a coal mine and at the screens at a Southern field pit and never to have worked underground.

Examination of the Lungs.—The upper lobe of the right lung is covered with dense adhesions, the lower lobe is greyish black. On section the greater part of the upper lobe is solid with pneumonia. There is some perivascular deposition of coal dust cells in this lobe but the lower lobe has still less.

The left lung is greyish black, there are no adhesions; the whole lung is oedematous, with little coal dust cell deposition.

Dissecting Microscope.—This shows a little coal dust cell deposition with the earliest signs of nodulation. There are large areas of pneumonic consolidation.

Sections.—These show pneumonic changes and early fibrosis of the coal dust type.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	36·00
Combined silica	1·46
Free silica	1·44
Free carbon	23·00
	Grammes.
Combined silica content of both lungs estimated	0·39
Free silica content of both lungs estimated	0·38
Free carbon content of both lungs estimated	6·1

Diagnosis.—Pneumonia; perivascular fibrosis of the coal dust type, early.

Group.—Miscellaneous Workers, Coal Mines.

CASE No. 92.

The patient was a worker on the screens of a coal mine. He was aged 50. He died from a failing heart.

He was employed as a surface hand at the South Clifton pit in the Southern coal field. He worked on the screens and loading waggons for twenty-five years. His was a particularly dusty job.

The post-mortem examination showed pleural fluid, adhesions of both lungs, enlarged heart and dilatation of the right ventricle.

Examination of the Lungs.—The right lung is greyish with a few adhesions on the postero-lateral surface. On section there is pneumonic consolidation in the lower portion of the lower lobe. There is generalised perivascular deposition of coal dust cells and a slight generalised emphysema. There is a small black fibrotic consolidation ½ centimetre in diameter in the upper lobe. The bronchi have thickened walls. The left lung is greyish in colour with some apical adhesions. On section the lower lobe has pneumonic consolidation in its lower half. There is generalised perivascular coal dust cell deposition. The walls of the bronchi are thickened. There is an early generalised emphysema. At the apex of the upper lobe there is a small fibrotic consolidation.

Dissecting Microscope.—This shows a moderate amount of perivascular coal dust cell deposition without nodulation associated with an early to moderate emphysema.

Examination of the Heart.—The coronary arteries show marked atheroma.

Sections.—These show some perivascular fibrosis of the coal dust type with areas of fibrosis of doubtful origin. A small fibrotic consolidation has a few giant cells associated with it; there are patches of oedema and pneumonia.

Chemical Analysis.—

	Milligrammes per gramme of dry lung.
Ash	27·09
Combined silica	2·60
Free silica	1·74
Free carbon	34·00
	Grammes.
Combined silica content of both lungs estimated	0·56
Free silica content of both lungs estimated	0·38
Free carbon content of both lungs estimated	7·4

Remarks.—These lungs are of interest in connection with the problem as to the inhalation of coal dust at the particularly dusty occupation of working at the screens of a Southern field coal mine. Despite the years of work the intake of coal dust appears to be much less at this occupation than among coal miners at the face of these pits.

Diagnosis.—Perivascular fibrosis, coal dust type, moderate; emphysema.

Group.—Miscellaneous Workers, Coal Mines.

TABLE 1.—Showing the Classification and Chemical Analysis of Lungs in the Various Groups.

CHEMICAL ANALYSIS.

Case No.	Age.	Dusty Occupations, Mining, etc.		Pathology.	Mg. per Gram of dried lung.				Content of lungs.			Remarks.
		Years of work in.	Years since work in.		Ash.	Combined Silica.	Free Silica.	Carbon.	Combined Silica.	Free Silica.	Carbon.	
COAL MINERS, NEW SOUTH WALES, SOUTHERN COALFIELD.												
									Grams.	Grams.	Grams.	
94	48	25	0	Pneumonokoniosis coal dust type, massive and emphysema	57·09	13·80	3·45	206·0	2·5	0·62	37·0	Old South Clifton, Coalcliff, Wongawilli, Old Bulli Collieries.
98	53	39	1½	Pneumonokoniosis coal dust type, massive and emphysema	40·80	6·80	3·50	140·0	2·0	1·1	42·0	Scarborough.
100	48	35	½	Pneumonokoniosis coal dust type, early, emphysema	26·95	2·80	0·56	23·0	0·64	0·13	5·3	Kembla Colliery.
117	48	?	0	No abnormality of lungs	17·05	0·27	0·32	5·0	0·06	0·07	1·0	Wongawilli, a damp pit.
122	63	40+	1½	Pneumonokoniosis coal dust type, moderate, lobar pneumonia	32·43	7·68	0·06	72·0	3·9	0·03	36·8	....
COAL MINERS, NEW SOUTH WALES, WESTERN COALFIELD.												
86	59	45	0	Pneumonokoniosis coal dust type, massive and emphysema	34·50	2·46	2·13	100·0	0·54	0·47	21·9	Lithgow colliery only.
89	65	40	4	Pneumonokoniosis coal dust type, marked and emphysema	28·35	0·46	1·00	86·0	0·10	0·20	20·0	Oakey Park, 20 years at face.
95	56	24	4	Pneumonokoniosis coal dust type, very early	29·85	0·48	0·48	23·0	0·10	0·10	4·9	Oakey Park and State Coal Mine.
99	41	27	1½	Pneumonokoniosis coal dust type, moderate	26·00	1·60	0·57	92·0	0·45	0·16	26·0	Lithgow Valley Colliery, 27 years.
104	61	25	1	Pneumonokoniosis coal dust type, marked and emphysema	34·61	2·90	0·97	49·0	0·76	0·25	12·8	State Coal Mine and Zig Zag Colliery.
107	...	20	0	Pneumonokoniosis coal dust type, early, lobar pneumonia	28·50	0·66	3·50	30·0	0·29	1·5	13·2	Invincible Colliery.
109	63	30	...	Pneumonokoniosis coal dust type, emphysema and bronchitis	27·40	1·20	0·40	29·0	0·36	0·12	8·6	State Mine and Cobar Tunnel Pit.
110	45	23	6	Pneumonokoniosis coal dust type, massive, tuberculosis	23·65	1·63	0·94	14·0	0·38	0·22	3·3	Cullen Bullen and Bolden Pits.
116	54	17	2½	Pneumonokoniosis coal dust type, marked	37·07	2·10	3·70	40·0	0·48	0·84	9·1	Lithgow Valley and Portland Main Range Pits.
COAL MINERS, NEW SOUTH WALES, NORTHERN COALFIELD.												
101	62	47	0	Pneumonokoniosis coal dust type, early, lung abscess	63·70	7·90	4·65	19·0	1·35	0·79	3·2	Upper and lower measures.
106	45	25	0	Pneumonokoniosis coal dust type, very early	36·13	0·72	1·02	30·4	0·10	0·14	4·2	Lower measures.
COAL MINERS, NEW SOUTH WALES, GENERAL.												
105	57	19	7	Pneumonokoniosis coal dust type, massive and emphysema	27·80	2·25	0·94	97·7	0·59	0·25	25·7	Southern and Western coalfield.
COAL MINERS, BRITISH AND AUSTRALASIAN.												
96	52	22	0	Pneumonokoniosis coal dust type early	24·77	1·54	1·65	53·0	0·25	0·26	8·5	Western coalfield and English pits.
103	54	36	4	Pneumonokoniosis coal dust type early	43·77	4·72	0·38	47·0	1·3	0·10	13·3	English and Welsh Collieries, 28 years, Ocean Coal Colliery, Rhondda Valley.
119	69	22+	...	Pneumonokoniosis coal dust type, massive	87·44	22·50	7·15	120·0	7·7	2·4	40·9	Metropolitan Pit, Southern coalfield and Scotland.
COAL AND METAL MINERS.												
83	66	27	6	Pneumonokoniosis siliceous (massive) and coal dust (moderate) types. Tuberculosis.	49·30	8·00	7·90	38·5	3·5	3·5	17·0	Metal mines. New South Wales, 16 years. Western coalfield, 11 years.
88	70	20	1½	Pneumonokoniosis siliceous type, moderate	53·10	5·40	6·60	11·0	1·20	1·40	2·4	Metal mines, 3 years. Shiftman, gobs and stone bottoms Excelsior Pit, 17 years.
97	57	35	0	Pneumonokoniosis siliceous type	38·20	2·62	1·82	11·0	0·57	0·40	2·4	South Africa, 4 years. Northern coalfield, 31 years.
111	63	26+	0	Pneumonokoniosis siliceous and coal dust types, and emphysema	33·10	7·20	0·20	50·0	2·2	0·06	15·4	Broken Hill, 6 years. Southern coalfield, 20 years.
114	58	31	½	Pneumonokoniosis coal dust type, marked and emphysema. Carcinoma of pancreas and lung.	58·77	4·65	9·70	43·0	1·2	2·6	11·0	Metal mine, 2 years. Western coalfield, 29 years.
118	61	14+	...	Pneumonokoniosis siliceous type, early	23·27	0·78	1·12	10·5	0·13	0·19	1·8	Western field collieries.
120	68	26	6	Pneumonokonosis siliceous type, marked	56·20	13·80	9·90	14·3	2·9	2·1	3·0	Western field State mine and screens, quartz mines.
MISCELLANEOUS WORKERS—COAL MINES.												
82	60	28	...	Pneumonokoniosis coal dust type, early, emphysema and pneumonia.	28·60	6·10	0·41	53·0	1·1	0·07	9·1	Pit top labourer. Metropolitan Pit. Southern coalfield.
90	59	...	...	Perivascular fibrosis coal dust type, early, pneumonia	36·00	1·46	1·44	23·0	0·39	0·38	6·1	Pit top labourer and screens. South Bulli, Southern coalfield.
92	50	25	...	Perivascular fibrosis coal dust type, moderate and emphysema	27·09	2·60	1·74	34·0	0·56	0·38	7·4	Screens and waggon loading South Clifton, Southern coalfield.

Table 2.—Showing the Full Chemical Analysis of Lungs in the Various Groups.

No.	Total dry weight (in grams).	Ash (in grams).	Milligrams per Gram of Dried Lung.								
			Ash	Combined Silica (SiO_2).	Free Silica (SiO_2).	Alumina (Al_2O_3).	Ferric Oxide (Fe_2O_3).	Calcium Oxide (CaO).	Magnesium Oxide (MgO).	Phosphoric Anhydride (P_2O_5).	Free Carbon (C).
Coal Miners, New South Wales, Southern Coalfield.											
94	79·7	4·55	57·09	13·80	3·45	13·00	5·65	1·42	0·60	14·70	206·0
98	149·5	6·11	40·80	6·80	3·50	7·30	6·70	0·63	0·41	10·95	140·0
100	115·0	3·10	26·95	2·80	0·56	2·32	3·10	0·73	0·39	6·35	23·0
117	112·0	1·91	17·05	0·27	0·32	0·37	2·22	0·82	0·35	9·65	5·0
122	275·0	8·92	32·43	7·68	0·06	4·75	4·08	0·60	0·47	10·00	72·0
Coal Miners, New South Wales, Western Coalfield.											
86	97·5	3·35	34·50	2·46	2·13	3·12	8·50	0·89	0·30	9·50	100·0
89	116·0	3·30	28·35	0·46	1·00	0·85	2·70	0·98	0·78	13·10	86·0
95	106·2	3·17	29·85	0·48	0·48	0·46	3·40	0·90	0·57	12·50	23·0
99	141·2	3·67	26·00	1·60	0·57	1·74	7·38	0·65	0·41	10·40	92·0
104	118·2	4·09	34·61	2·90	0·97	2·08	9·00	2·82	0·57	12·60	49·0
107	199·0	5·67	28·50	0·66	3·50	2·15	2·75	0·83	0·48	14·20	30·0
109	111·0	3·05	27·40	1·20	0·40	1·80	6·30	2·20	0·70	11·40	29·0
110	116·7	2·76	23·65	1·63	0·94	1·17	4·25	3·10	0·36	8·80	14·0
116	113·3	4·20	37·07	2·10	3·70	2·78	4·45	4·20	0·60	14·40	40·0
Coal Miners, New South Wales, Northern Coalfield.											
101	73·0	4·65	63·70	7·90	4·65	7·05	14·60	1·42	0·55	17·25	19·0
106	68·4	2·47	36·13	0·72	1·02	1·18	2·90	0·72	0·74	16·60	30·4
Coal Miners, New South Wales, General.											
105	131·4	3·65	27·80	2·25	0·94	1·86	4·30	1·35	0·50	9·50	97·7
Coal Miners, British and Australasian.											
96	87·6	2·17	24·77	1·54	1·65	2·00	5·40	0·84	0·35	9·35	53·0
103	140·5	6·15	43·77	4·72	0·38	2·65	3·95	0·87	0·81	13·80	47·0
119	85·2	7·45	87·44	22·50	7·15	16·80	12·00	2·85	0·93	13·40	120·0
Coal and Metal Miners.											
83	147·3	7·25	49·30	8·00	7·90	6·35	5·40	1·82	0·98	12·70	38·5
88	107·2	5·70	53·10	5·40	6·60	5·84	9·00	3·50	0·80	11·50	11·0
97	99·8	3·82	38·20	2·62	1·82	1·92	9·60	1·54	0·60	11·90	11·0
111	172·7	5·72	33·10	7·20	0·20	4·40	4·00	1·00	0·70	9·50	50·0
114	117·4	6·90	58·77	4·65	9·70	7·10	20·30	1·22	0·55	11·75	43·0
118	83·8	1·95	23·27	0·78	1·12	0·95	3·85	1·13	0·12	6·40	10·5
120	90·6	5·10	56·20	13·80	9·90	6·80	8·20	0·50	0·40	12·40	14·3
Miscellaneous Workers—Coal Mines.											
82	86·3	2·47	28·60	6·10	0·41	6·00	3·00	0·90	0·57	5·60	53·0
90	118·0	4·25	36·00	1·46	1·44	1·53	7·80	1·58	0·52	12·40	23·0
92	108·5	2·94	27·09	2·60	1·74	2·55	4·05	1·30	0·44	8·30	34·0

Section II.

Metropolitan Combined Sanitary Districts of Sydney.

REPORT OF THE METROPOLITAN MEDICAL OFFICER OF HEALTH FOR THE YEAR 1939.

J. Grahame Drew, M.A., M.B., B.Ch. (Camb.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), D.P.H., D.T.M., D.T.H. (Syd.), F.R.San.I.

To the Director-General of Public Health,

Sir,

I have the honour to present my report on the Health Conditions of the Metropolitan Area of Sydney for the year 1939. Due to war conditions the report is considerably abridged.

1939 has been marked by the commencement of periods of absence on the part of members of the Staff and Municipal Health Departments on military service. These have increased in 1940 and must continue to do so. Consequently, it is of the utmost importance that Local Authorities pay meticulous care immediately to all health problems as they arise so that they can be solved with the minimum of delay, expense and suffering.

I would, therefore, urge the following :—

(1) The campaign against diphtheria in the Metropolitan Area must not be allowed to languish. There is no doubt that it is exerting an influence on the disease, the incidence of which is still decreasing.

(2) Inspection of homes for unhealthy conditions must not be relaxed, as personal inspection of many of these homes reveals the urgent necessity of more vigorous action on the part of Municipal Councils. Health officers should have their freedom of action considerably increased so that insanitary conditions of an urgent nature, such as broken sewage drains, can be remedied immediately they are reported.

Overcrowding is still a problem of the first magnitude. The dangerous practice of dividing a small flat into several homes for several families is increasing. To combat this some form of registration with the Municipal Health Department is required so that the subdivision of houses and flats may be controlled.

In connection with the foregoing the fact that typhoid fever is tending to recur must be taken into account.

Notification of Infectious Diseases.—It must be apparent to all medical men that early notification of a case of infectious disease or a suspected case, especially in regard to typhoid fever, must be of the greatest of value to the Medical Officer of Health in his efforts to initiate action to control the disease. It is, therefore, stressed that willing professional co-operation is desired rather than legal measures to enforce this section of the Public Health Act.

Vermin.—Rats still form a major problem. Where their presence is noted the requisite measures must be taken without delay. This is the duty of the householder who has at his command several firms of trained exterminators whose work now embraces a knowledge of house construction as well as that of poison baits and habits of rats.

Mosquitoes.—The presence of this pest in Sydney is discouraging to the Health Department, as it would seem to be well-nigh impossible to compel the Department of Agriculture to undertake complete requisite measures to eradicate breeding places in the Botanic Gardens.

Vital Statistics.—Full details may be found in the Report of the Government Statistician.

Population of the Metropolitan Area	1,380,940 (1,365,250)*
Births	20,699 (19,936).
Deaths	14,563 10·62 per 1,000; (10·57)
Infantile Mortality	34·54 per 1,000 live births (38·32).
Maternal Mortality	Total puerperal causes—96 (113). Criminal abortion—32 (36).
Rate per 1,000 Live Births (Including Criminal Abortion.)	4·64 (5·67).
Excluding Criminal Abortion	3·09 (3·86).

N.B. * Denotes figures for the year 1939. Figures in brackets are for year 1938.

Causes of Death in the Metropolis.—There have been small increases in practically all divisions. Pneumonia has declined to fifth place with the rate of 596 per million (752), and nephritis, 479 per million (610).

Epidemic Diseases.—

Diphtheria	The decline continues. 2,030 cases (2,061), and 88 deaths (83).
Scarlet Fever	Has increased to 1,997 cases (1,612) and 4 deaths (8).
Typhoid Fever	29 cases (37) and 7 deaths (10).
Anterior Poliomyelitis	17 cases (279) and 2 deaths.
Cerebro-Spinal Meningitis	12 cases.
Typhus Fever	1 case (5).
Undulant Fever	3 cases.
Encephalitis Lethargica	2 cases.

Hunter River Combined Sanitary Districts.

REPORT OF THE MEDICAL OFFICER OF HEALTH FOR THE YEAR ENDED 31st DECEMBER, 1939.

Staff.—Dr. J. R. Shannon, Medical Officer of Health; 1 Senior Health Inspector; 1 Supervisory Nurse; and 1 Temporary Office Assistant.

Population.—The population of the district at the Census of 30th June, 1933, was 209,465. The estimated population at the 31st December, 1939, was 224,770, and the estimated mean population for 1939 was 223,640.

Births.—There were 3,729 live births to mothers resident in the district, equivalent to a rate of 16·67 per 1,000 of mean population. Of these, 1,879 were males and 1,850 females.

Ex-nuptial Births.—These numbered 131, equivalent to a rate of ·59 per 1,000 of mean population. The ex-nuptial live births represented 3·51 per cent. of the total live births.

Deaths.—The deaths of residents numbered 2,122, equivalent to a rate of 9·49 per 1,000 of mean population. Of these, 1,200 were males and 922 females.

Infantile Mortality.—Deaths under one year of age numbered 147, equal to a rate of 39·42 per 1,000 live births. Of the total deaths under one year of age, 92 (or 63 per cent.) were aged under one week, and 109 (or 74 per cent.) were aged under one month.

Stillbirths.—There were 116 stillbirths to mothers resident in the district, equal to a rate of ·52 per 1,000 of mean population and representing 3·02 per cent. of all births (live and still).

INFECTIOUS DISEASES.

Diphtheria.—336 cases (5 deaths) were notified in 1939, compared with 424 cases in 1938 and an annual average of 516 for the previous five years.

During the year, 3,034 children were immunised by Anatoxin at Council Clinics.

Scarlet Fever.—407 cases (4 deaths) were notified in 1939 compared with 101 cases in 1938 and an annual average of 129 for the previous five years.

The cases reported in 1939 represent the highest incidence since 1933, when 604 cases (9 deaths) were notified.

Typhoid Fever.—10 cases (2 deaths) were notified in 1939 compared with 13 cases in 1938 and an annual average of 12 for the previous five years.

Typhoid fever was fairly prevalent in the Hunter River Combined Districts in the decade 1921–1930. In 1921, 133 cases from all parts of the district were notified. There was a gradual lessening of the prevalence from then onwards. In 1930 26 cases were notified, and in 1937 the lowest figure to date was recorded, viz., 7 cases. Since 1937 there has been a slight increase, but with the continued improvement in sanitation, the disease is unlikely to occur in such degree as in the past.

Infantile Paralysis.—4 cases (0 deaths) were notified in 1939, compared with 105 cases in 1938, 2 cases in 1937 and 1 case in 1936.

Encephalitis Lethargica.—2 cases (0 deaths) were notified in 1939.

Puerperal Pyrexia.—3 cases (2 deaths) were notified in 1939, compared with 10 in 1938 and an annual average of 12 cases during the previous five years.

Cerebro-Spinal Meningitis.—5 cases (1 death) were notified in 1939 compared with 1 case in 1938. In 1934, 5 cases were notified but in the intervening years the annual averge was less than 1 case.

Pulmonary Tuberculosis.—122 cases were notified during 1939 compared with 85 cases in 1938.

There were 4,071 attendances at the Newcastle Hospital Anti-Tuberculosis Dispensary during 1939. Patients attending numbered 956, of whom 502 were new cases.

Artificial Pneumothorax treatment was effected on 19 patients.

Homes visited numbered 114. In all, 314 home visits were made by the Supervisory Nurse.

Venereal Diseases.—In tracing female defaulters (3), 6 visits were made.

Thirteen males were notified as having defaulted from treatment. One male was prosecuted under Section 5, Venereal Diseases Act.

Private Hospitals.—Number registered in Hunter River Combined Sanitary Districts in 1939 totalled 49, housing a total of 274 beds. During 1939, two private hospitals were closed (7 beds), and two new licenses were issued (4 beds).

Inspections of private hospitals during the year totalled 133.

Registered Midwifery Nurses.—Number registered in 1939 totalled 240. The Supervisory Nurse made a total of 194 visits of inspection.

Mosquito Survey.

During August, 1939, Mr. F. H. Taylor, entomologist of the School of Public Health and Tropical Medicine, co-operated with the Council of the City of Greater Newcastle and the Department of Public Health in making a survey of the mosquito breeding grounds of the Greater City Area.

The mosquito species found were: Anopheles annulipes (Walker); Stegomyia aegypti L.; Culex fatigans; Finlaya notoscriptus Skuse.

Following this survey, immediate steps were taken by the Greater Newcastle Council to carry out the suggestions made by Mr. Taylor.

Abattoirs for Maitland.

On 7th March, 1939, Mr. B. H. Nolan commenced an enquiry into the proposal of the West Maitland Council to purchase from Foggit Jones Ltd. an old bacon factory at Rutherford. Foggit Jones Ltd. had undertaken to renovate and alter the factory to the requirements of a small abattoirs.

At the end of the year, some finality seemed to have been reached in regard to the West Maitland project. It was decided that the purchase of the converted Foggit Jones factory at Rutherford would be proceeded with subject to the approval of the Department of Public Health to the proclamation of Section 464 of the Local Government Act, 1919, for the district of West Maitland and the adjoining area

Nightsoil Disposal.

There were thirty approved nightsoil depots in the area, four of which were closed during the year. Frequent visits of inspection were made of the depots, plant and vehicles used, so as to assure efficient rendering of the services. The Councils of three areas were required to suitably construct a special type of vehicle being used at the depots.

Following complaints, action was commenced to bring about closure of one depot.

Garbage.

Frequent visits of inspection were made of existing garbage depots. Investigations were carried out during the year concerning garbage disposal in villages and towns in shire areas, not rendered a removal service, and data collected on which to base a request for installation of general removal services. The proposal includes reclamation of a vast area of swampy park with garbage and beach sand, thus combining an essential service with the formation of a shire asset.

Septic Tanks.

Increased building activities in areas on the outskirts of the sewered area of the City of Greater Newcastle further increased the demand for septic tank installations.

Architects and builders, commissioned to provide for a septic tank installation, invariably seek advice from this Department in the technicalities of their particular problem before preparing the plans.

Twenty-one applications were dealt with by this office during the year.

Cattle Slaughtering.

Forty-three privately-owned slaughter-yards within this district serve a population of approximately 70,000. Five certificated Inspectors are employed to inspect the carcases of all animals slaughtered at the majority of these yards. The system of inspection functioned satisfactorily during the year and frequent inspection of the various premises disclosed conditions in keeping with this type of establishment.

Noxious Trades.

Forty-eight pig-keepers, two poultry farmers, thirty-four fat extractors, two knackers and one rag collector, registered under the Noxious Trades Act, 1902, carried on business during the year.

In the case of pig-keepers and fat extractors, the majority trade in conjunction with slaughtering premises. Conduct of these trades, which are generally incidental to cattle slaughtering, are the means of producing offensive odour and consequently attracting flies to the slaughtering premises.

Food.

Periodical visits to this district are made by an Inspector attached to the Pure Food Branch, for the purpose of collecting samples of food for analysis and also a general inspection of food premises. When circumstances permit, the visiting officer is accompanied by the Inspector stationed at Newcastle.

Unhealthy Building Land.

The application of Section 55, Public Health Act, to certain low-lying swampy land near Newcastle and in Lake Macquarie Shire, is resulting in marked improvement.

In a period of four years the area at Smedmore has altered from rows of semi-ruinous cottages into comfortable homes of good appearance. The improvement to the area has resulted in a demand for land, which can be reclaimed at a low cost, and many new homes have been erected, whereas some few years ago the area would not be tolerated.

Health Week.

The organisation of this campaign was carried out by officers of this Department in conjunction with officers of several other Departments and staff of the City Council during their spare time. A certain amount of work during office hours was essential, and during the campaign direction of the programme was conducted from this office.

Special features, as far as this Department was concerned, included an elaborate float in the Show Day procession depicting Youth and Health. Special window displays were arranged. Lectures were given in schools, workplaces and by radio by members of the medical staff and local officers. Fifteen thousand special booklets were distributed throughout the district. Diphtheria immunisation was made a feature of the week.

Broken Hill and District.

REPORT OF MEDICAL OFFICER OF HEALTH, W. E. GEORGE, M.B., Ch.M., M.R.A.C.P., FOR THE YEAR ENDED 31st DECEMBER, 1939.

The population of Broken Hill Municipal District at 31st December, 1939, was 28,968, which represents a decrease of 426 for the twelve months, compared with a gain of 310 inhabitants for the previous twelve months.

The deaths for the period under review numbered 379 (males, 229; females, 150). There were 639 births for the twelve months, comprising 336 males and 303 females.

Infectious Diseases.—The monthly incidence of notifiable infectious diseases was as follows :—

	Typhoid Fever.	Scarlet Fever.	Diphtheria.	Infantile Paralysis.	Puerperal Infection.
January	...	2	5	...	...
February	...	5	4	...	...
March	...	3	6	...	1
April	...	1	2	...	...
May	2 (N.I.)	...	29 (3 N.I.)	...	...
June	...	6	18	...	...
July	...	3 (1 N.I.)	41	...	...
August	...	...	23	...	...
September	...	1	4	...	...
October	1	...	5	...	...
November	...	...	4 (1 N.I.)	...	...
December	1	...	2	...	...
Totals	4 (2 N.I.)	21 (1 N.I.)	143 (6 N.I.)	...	1

The incidence of notifiable infectious diseases at Broken Hill during the past five years is shown in the following table :—

	1935.	1936.	1937.	1938.	1939.
Typhoid and Paratyphoid	11	8	23	6	4 (2 N.I.)
Scarlet Fever	17	13	142	28	21 (1 N.I.)
Diphtheria	9	10	9	79	143 (6 N.I.)
Infantile Paralysis	...	...	...	1	...

During the year two campaigns were conducted by the Municipal Council against diphtheria. In the first Immunisation Campaign 936 children had the first injection and 767 the third, whilst in the second campaign 1,218 children had the first injection and 1,104 the third. In addition, many children had injections privately, and at the local hospital. The effect of these immunisations on the future incidence of diphtheria in the municipality will be awaited with interest.

The State Laboratory again had a busy year. The total number of examinations, which has again increased, being as follows :—

Figures for the previous twelve months are given in parenthesis.

Total number of examinations	10,497	(9,141)
Biochemical tests	1,431	(1,404)
Bacteriological examinations	6,908	(6,032)
Haematological examinations	1,826	(1,343)
Histopathological (tissue)	86	(92)
Serological specimens (sent to Sydney)	246	(270)

The staff at the State Laboratory has performed its duties in a highly satisfactory manner.

Wm. E. GEORGE,
Medical Officer of Health.

SECTION III.

State Hospitals under Control of Director General of Public Health.

LEPER LAZARET.

REPORT ON LEPROSY IN NEW SOUTH WALES FOR THE YEAR ENDED 31ST DECEMBER, 1939.

On 1st January, 1939, eleven (11) persons remained under detention at the Lazaret.

Two deaths occurred during 1939, *i.e.*, T.A. (case No. 101), A.H. Hoey (case No. 175).

The total number of persons admitted since 1883, when patients were first received (though the notification of leprosy was first made compulsory and the detention of lepers provided for by law only towards the end of 1900), is 197. Distributed under nationalities, the account stands as follows at 31st December, 1939:—

	Admitted	Readmitted.	Discharged.	Repatriated.	Died.	Remaining in at 31 Dec., 1939.
Whites, of European descent—						
New South Wales	54	3	16	......	32	5
Victoria	3	......	1	......	2	......
Queensland	5	......	3	......	2	......
Northern Territory	1	1	2	......	......	......
Western Australia	1	......	......	......	......	1
New Zealand	1	......	......	......	1	......
Fiji	2	......	1	......	1	......
England	13	......	4	......	9	......
Ireland	8	......	2	......	6	......
Scotland	1	......	1	......	......	......
Germany	5	......	2 1 absconded.	1	2	......
Belgium	1	......	......	......	1	......
U.S. America	1	......	......	......	1	......
Greece	2	......	......	1	1	......
Malta	3	......	1 absconded,	......	1	1
Sweden	1	......	......	......	1	......
France	1	......	......	......	1	......
Mauritius	1	......	1	......	......	......
Italy	1	......	......	1	......	......
Coloured patients—						
New South Wales	4	......	1	......	2	1
West Indies	1	......	1 (in 1885).	......	......	......
India	4	......	1 absconded.	1	2	......
China	58	......	2	34	22	......
Straits Settlements	1	......	......	......	......	1
Java	1	......	......	......	1	......
New Caledonia	1	......	......	......	1	......
Pacific Islands	18	......	......	6	12	......
Egypt	1	......	......	1	......	......
Zanzibar	1	......	1 (Hong Kong at own request).	......	......	......
Syria	2	......	1	1	......	......
	197	4	41	46	101	9

Thus the number remaining in the lazaret on 31st December, 1939, was 9 persons; 6 males and 3 females.

Appendix A shows particulars of each case under detention since the year 1912.*

Every opportunity has been offered to members of the medical profession to visit the lazaret for the purpose of seeing such patients as were formerly under their care, or for study of the disease.

The following statements show the expenditure for the year, and the sources from which it has been defrayed:—

STATEMENT showing the Working expenses of the Lazarets (for men and for women) at Little Bay for the year 1939.

	1939.		
	£	s.	d.
Salaries	2,354	12	7
Provisions	705	5	1
Tobacco and comforts	95	13	0
Clothing	73	13	8
Fuel and light	174	3	4
Drugs, dressings, etc.	66	7	10
Miscellaneous	541	1	10
	£4,010	17	4

Deduct amounts received in respect of maintenance, £104 5s. 9d., Nett cost, £3,906 11s. 7d.

Average number of patients resident, 10·7 being equal to an average of £365 10s. 5d. per inmate per annum in 1939.

APPENDIX A.

RETURN showing admissions, discharges, &c., of Patients suffering from leprosy for the years 1922–1939.

	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.	1934.	1935	1936.	1937.	1938.	1939.
In Lazaret on 1st January	22	21	16	15	17	15	17	20	20	20	20	19	19	17	18	16	13	11
Admitted during the year	3	1	2	8	1	4	5	1	4	3	1	2	1	2	3	3	...	...
Died during the year	2	5	2	...	1	2	1	1	4	2	...	1	2	1	1	4	2	2
Discharged	2	...	1	4	2	...	1	...	...	...	2	1	1	...	1	2	...	...
Repatriated	...	1	...	2	...	...	...	...	...	1	...	...	...	...	3	...	...	...
Remaining in Lazaret on 31st December ... Total	21	16	15	17	15	17	20	20	20	20	19	19	17	18	16	13	11	9
Males	16	12	11	13	11	14	16	15	17	16	16	16	15	15	13	9	8	6
Females	5	4	4	4	4	3	4	5	3	4	3	3	2	3	3	4	3	3

Birthplaces of Lepers.—The inmates of the Lazaret at the close of the year 1939 were of the following nationalities:—New South Wales, 5; West Australia, 1; Australian Aborigines, 1; Straits Settlements 1; Malta, 1. Total 9.

Working Expenses of Lazaret.—During the year 1939, the nett cost of the management of this Institution was £3,906 11s. 7d. Calculated on the average number of inmates, the average cost per inmate per annum was £365 10s. 5d.

APPENDIX A—*continued.*

RETURN showing Particulars of Lepers admitted to Little Bay, New South Wales, since the year 1912.

Name.	Sex.	Native of—	Occupation.	Admission.		Where from.	No. of Case in Clinical Notes.	Died or Discharged.
				Age on.	Date of.			
G.S.	Female	N.S.W.	Domestic	18	9 Feb., 1904	Lismore, N.S.W.	88	Died, 28 July, 1936.
T.A.	Male	South Sea Is.	Farmer	34	8 July, 1905	Clarence River, N.S.W.	101	Died, 16 Oct., 1939.
S.C.	,,	China	Cabinet-maker	40	21 May, 1912	Boolaroo, N.S.W.	128	Died, 15 Sept., 1935.
L.J.T.	,,	N.S.W.	School	12	14 Aug., ,,	Lismore	129	Discharged, 21 July, 1916.
S.M.	,,	Mallicolo	Labourer	50	27 ,, ,,	Maclean	130	Died, 23 April, 1919.
J.F.	,,	N.S.W.	Van-driver	28	19 Sept., ,,	Glebe	131	Discharged, 1 Jan., 1920; re-admitted, 7 Nov., 1927 died, 18 Mar., 1930.
W.D.	,,	,,	Fisherman	22	24 June, 1913	Ulladulla, South Coast	132	Discharged, 10 Feb., 1921.
J.M.	,,	New Hebrides	Labourer	60	28 Nov., ,,	Tweed River	133	Died, 17 Mar., 1917.
J.C.M.	,,	N.S.W.	Miner	26	28 Jan., 1914	Homeville, W. Maitland	134	Died, 17 June, 1915.
W.B.	,,	England	Dealer	33	4 Mar., ,,	Sydney	135	Died, 14 Aug., 1915.
A.C.P.	,,	N.S.W.	School	15	23 June, ,,	Lismore	136	Discharged, 12 Oct., 1922; re-admitted, 16 Jan., 1925; died, 27 August, 1937.
E.W.	,,	South Sea Is.	Labourer	50	17 Nov., ,,	Cudgen	137	Discharged, 19 Oct., 1932.
H.H.	,,	England	,,	36	19 May, 1915	Hornsby	138	Died, 7 Jan., 1924.
A.D.	Female	New Hebrides	Domestic	19	1 Sept., ,,	St. Kilda, Victoria	139	Died, 18 July, 1923.
C.F.	Male	China	Cabinet-maker	50	18 Dec., ,,	Waterloo, N.S.W.	140	Discharged, 10 Mar., 1917.
L.F.	,,	England	Showman	45	9 Mar., 1916	Campbelltown	141	Discharged, 2 June, 1917.
F.H.	,,	China	Gardener	45	25 May, ,,	Sydney	142	Died, 15 June, 1916.
D.M.	,,	N.S.W.	Publican	46	25 ,, ,,	Armidale	143	Discharged, 19 May, 1917.
W.J.P.	,,	,,	School	12	25 Nov., ,,	Lismore	144	Discharged, 5 Nov.,, 1924 re-admitted, 1 July 1927; died, 11 August, 1937.
E.L.P.	,,	,,	,,	11	25 ,, ,,	,,	145	Died, 27 Dec., 1922.
E.M.	,,	Germany		56	3 April, 1917	Liverpool, N.S.W.	146	Repatriated as Prisoner of War, 27 May, 1919.
C.W.	,,	England		80	14 ,, ,,	Sydney	147	Died, 18 Feb., 1923.
C.D.	Female	N.S.W.	Domestic	54	30 Oct., ,,	Casino, N.S.W.	148	Discharged, 12 June, 1920.
P.P.	Male	Greece	Cafe-proprietor	33	21 Feb., 1918	Melbourne, Victoria	149	Died, 24 Feb., 1931.
J.C.	,,	Ireland	Miner	84	5 Feb., 1919		150	Died, 19 Nov., 1920.
M.T.	Female	Victoria	Housewife	63	25 ,, ,,	Sydney	150A	Died, 1 May, 1919.
J.P.	Male	Malta	Labourer	29	18 June, ,,		151	Absconded, 14 Sept., 1919.
J.S.	,,	,,	,,	30	22 Dec., ,,	Kempsey	152	Died, 29 July, 1921.
A.S.	,,	China	Gardener	64	3 Aug., 1920	Kandos, N.S.W.	153	Died, 2 Aug., 1923.
C.T.P.	,,	,,	Labourer	30	19 Oct., ,,	Nauru Is., S. Pacific	154	Discharged, 25 April, 1921;
E.T.D.	,,	N.S.W.	Teamster	32	10 Nov., ,,	Bellingen, N.S.W.	155	Discharged, 1 Dec., 1925. re-admitted, 28 Sept., 1931.
T.F.	,,	Ireland	Civil servant	57	20 Dec., ,,	Hobart, Tasmania	156	Discharged, 18 June, 1921.
A.W.	Female	Sweden	Seamstress	62	18 Feb., 1921	Newcastle	157	Died, 24 Feb., 1930.
D.A.	Male	N.S.W.	Teamster	71	26 May, ,,	Newcastle	90	Died, 16 July, 1921.
J.C.	,,	N.S.W.	Fisherman	22	18 Aug., ,,	Tilba Tilba	158	Died 6 Aug., 1934.
A.S.	Female	Queensland	Domestic	20	29 Jan., 1922	Redfern	159	Returned to Peel Island, Queensland, 20 Mar., 1922.
Y.M.B.	Male	France	Labourer	67	7 June, 1922	Hunter's Hill	160	Died, 12 Aug., 1922.
E.	,,	Ceylon	Sailor	24	13 Dec., ,,	Not fixed	161	Repatriated, 26 June, 1923.
R.B.	,,	N.S.W.	Coach-painter	42	18 June, 1923	Taree, N.S.W.	95	Died, 5 Aug., 1923.
C.E.B.	,,	Northern Terr.	Garage proprietor	35	11 Aug., 1924	Darwin, N.T.	162	Discharged, 16 Sept., 1925. Re-admitted, 7 July, 1933. Discharged, 12 Dec., 1933.
H.L.S.	,,	N.S.W.	Invalid pensioner	37	26 Oct., ,,	Liverpool Asylum	163	
J.B.	,,	Ireland	Bush worker	61	28 Jan., 1925	Liverpool	164	Died, 24 June, 1931.
A.C.	,,	Germany	Importer	45	6 Mar., ,,	Sydney	165	Absconded, 21 Aug., 1925.
K	,,	Hawaii	Musician	...	7 ,, ,,	,,	166	Repatriated, 11 Mar., 1925.
A.M.	,,	China	School	12	12 ,, ,,	,,	167	Repatriated, 16 Dec., 1925.
A.D.	,,	N.S.W.	,,	7	21 April, ,,	,,	168	Discharged, 1 Dec., 1925.
Wong Toe	,,	China	Gardener	46	22 Nov., ,,	Clarence River	169	Died, 29 November, 1937.
H.P.	,,	N.S.W.	Farmer	39	14 Dec., ,,	Queensland	170	Discharged, 9 Sept., 1926.
G.T.	,,	Scotland	Chemist	56	8 May, 1926	Sydney	......	Discharged, 21 July, 1926.
E.S.G.	Female	Queensland	Domestic	33	27 April, 1927	Hunter's Hill	171	Died, 29 Jan., 1930.
A.R.B.	Male	N.S.W.	Farm labourer	41	6 July, ,,	Croydon	172	Died, 26 Nov., 1928.
W.C.	,,	Mauritius	Sugar-worker	47	7 Feb., 1928	Queensland	173	Discharged, 4 July, 1928.
D.E.O.	Female	Queensland	Domestic	31	29 Mar., ,,	Northern Territory	174	Discharged, 15 Feb., 1932.
Ah Hoey	Male	China	Gardener	49	28 May, ,,	Liverpool	175	Died, 27 Nov., 1939.
P.T.I.	,,	N.S.W.	Labourer	17	9 Dec., ,,	Tweed River	176	Died, 15 Dec., 1933.
J.L.	,,	,,	,,	47	22 ,, ,,	Macksville	177	
L.M.	Female	,,	Domestic	59	14 Sept., 1929	Lismore	178	Discharged, 30 Nov., 1934.
E.W.	,,	,,	,,	33	4 Feb., 1930	Sydney	179	Died, 6 Feb., 1930.
T.G.J.D.	Male	,,	School	13	4 July, ,,	Lismore	180	Discharged, 16 April, 1937.
R.C.	,,	W. Australia	,,	12	6 Aug., ,,	Sydney	181	
L.B.	,,	Italy	Labourer	39	13 Sept., ,,	Queensland	182	Repatriated to Queensland, 15 Jan., 1931.
A.M.	Female	N.S.W.	Home-duties	19	1 April, 1931	Adamstown, N.S.W.	183	Died, 17 Oct., 1938.
W.L.	Male	China	Gardener	60	12 Sept., 1931	Kogarah, N.S.W.	184	Repatriated to China, 14 March, 1936.
J.T.	,,	England	Bootmaker	60	29 Jan., 1932	Queensland	185	Discharged, 24 Dec., 1937.
A.D.	,,	N.S.W.	Engine-driver	53	30 Sept., 1933	Lakemba, N.S.W.	186	Died, 24 Nov., 1938.
E.C.H.L.	,,	Victoria	Student	42	15 April, 1934	Manly	187	Discharged, 21 May, 1936.
A.N.	,,	Germany	Labourer	55	30 Aug., ,,	Rockhampton, Q'land	188	Repatriated to Queensland, 5 Nov., 1936.
M.E.M.G.	Female	N.S.W.	Domestic	25	11 Oct., ,,	Lawrence, Clarence R.	189	
I.D.	Female	N.S.W.	Domestic	38	29 Mar., 1936	Bankstown	190	
J.D.C.	Male	Queensland	Student	20	5 Aug., ,,	Goulburn	191	Repatriated to Queensland, 5 November, 1936.
H.P.H.	Male	Straits Settlemts.		46	22 Oct., ,,	Woollahra	192	
A.P.	Female	N.S.W.	Home-duties	71	24 June, 1937	Malabar	193	
K.O.	,,	,,	,,	30	14 Sept., ,,	Kyogle	194	Died, 22 September, 1937.
M.A.	Male	Malta	Labourer	45	12 Oct., ,,	Auburn	195	

NOTES.—(*a*) The cases of a few other persons who, for one reason or other, were never admitted to the lazaret, have been mentioned in the course of the series of Reports, and are additional to those shown in this Table. (*b*) On comparison with the reports for early years, differences in ages or dates of admission of some coloured patients will be observed. Those now given are the correct ages and dates. Patients remaining under treatment have their initials shown in *italics*.

STATISTICAL SUMMARY.

TABLE I.—Summary Statement of Expenditure—State Hospitals and Homes of Lidcombe, Liverpool and Newington, Waterfall Sanatorium, Strickland Convalescent Hospital, and Randwick Auxiliary Hospital, for the year ended 31st December, 1939.

Head of Expenditure.	Lidcombe.	Liverpool.	Newington.	Waterfall Sanatorium.	Strickland Convalescent Hospital.	Randwick Auxiliary Hospital.	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Salaries and Payments in the Nature of Salary	45,533 1 6	17,502 7 8	15,929 11 9	17,785 17 8	2,424 2 8	11,650 19 1	110,826 0 4
Gratuities to Inmates	5,228 12 10	2,970 14 11	2,250 17 6	2,273 16 9	348 9 0	113 6 0	13,185 17 0
Provisions	22,553 17 9	10,726 8 4	9,071 16 1	12,021 17 1	2,219 2 3	5,864 4 6	62,457 6 0
Drugs, Dressings, Surgical Appliances, etc.	2,483 12 6	1,104 15 8	1,045 16 8	398 1 5	22 2 10	724 17 10	5,779 6 11
Fuel and Lighting	3,110 14 6	1,948 18 4	1,548 13 5	1,960 6 4	263 9 2	462 10 4	9,294 12 1
Forage	4,682 5 0	2,619 14 3	216 6 8	211 17 3	......	......	7,730 3 2
Materials for Minor Repairs, Additions and Renewals to Buildings and Plant	1,706 13 7	787 1 7	626 19 7	720 11 11	40 13 2	1,174 3 5	5,056 3 3
Transport Expenditure, including Freight and Cartage	1,645 6 3	773 2 9	650 7 5	1,680 13 2	33 13 11	26 13 10	4,809 17 4
Clothing and Drapery	6,703 4 1	2,160 12 6	2,071 9 2	853 14 10	98 7 5	549 15 3	12,437 3 3
Hardware, Ironmongery and General Stores	1,640 9 5	547 16 6	484 7 4	549 6 4	156 7 5	105 13 8	3,484 0 8
Furniture	......	64 9 4	365 7 3	304 5 8	20 6 2	910 5 11	1,664 14 4
Office Expenses—Telephones, Stationery and Printing	568 13 9	280 14 7	214 18 1	190 6 9	73 15 6	43 18 6	1,372 7 2
Livestock and Farm and Garden Requisites	241 16 0	126 0 5	71 17 2	61 11 1	7 17 7	1 1 10	510 4 1
Miscellaneous	1,553 3 7	1,039 15 9	575 4 5	218 16 2	70 4 1	478 4 9	3,935 8 9
Steam Services, Laundry Expenses, X-ray Fees, and Cost of use of Operating Theatre	......	......	......	......	70 18 3	1,244 19 2	1,315 17 5
	97,651 10 9	42,652 12 7	35,123 12 6	39,231 2 5	5,849 9 5	23,350 14 1	243,859 1 9
Add Exchange	800 16 10	1,225 15 7	1,659 15 1	592 12 3	100 10 11	61 4 5	4,440 15 1
	98,452 7 7	43,878 8 2	36,783 7 7	39,823 14 8	5,950 0 4	23,411 18 6	248,299 16 10
Deduct Exchange	2,695 13 8	991 12 8	1,929 14 1	......	......	......	5,617 0 5
Total	95,756 13 11	42,886 15 6	34,853 13 6	39,823 14 8	5,950 0 4	23,411 18 6	242,682 16 5
Stock on hand at 31st December, 1938	6,728 15 6	4,189 0 0	3,790 18 11	2,112 4 8	462 11 1	352 2 3	17,635 12 5
Grand Total	102,485 9 5	47,075 15 6	38,644 12 5	41,935 19 4	6,412 11 5	23,764 0 9	260,318 8 10
Deduct—							
Stock on hand at 31st December, 1939	6,772 0 8	4,181 0 0	4,155 12 4	2,033 13 1	480 19 7	389 9 9	......
Proceeds of Sales, etc.	1,974 16 4	659 13 6	942 19 1	580 8 4	1 8 6	49 7 0	......
Total Deductions	8,746 17 0	4,840 13 6	5,098 11 5	2,614 1 5	482 8 1	438 16 9	22,221 8 2
Total Cost	93,738 12 5	42,235 2 0	33,546 1 0	39,321 17 11	5,930 3 4	23,325 4 0	238,097 0 8
Average Daily Population	1,734	780	624	542*	93†	146‡	......
Average Annual Cost per Inmate	£ s. d. 54 1 2	£ s. d. 54 2 11	£ s. d. 53 15 2	£ s. d. 72 10 11	£ s. d. 63 15 4	£ s. d. 159 15 3	....
Annual Contributions towards Maintenance	18,739 5 1	7,120 8 0	8,411 6 4	5,406 10 8	771 5 9	2,297 13 6	......

* Patients, 407—£96 12s. 3d.—or plus inmate workers, 135—£72 10s. 11d.

† Patients, 72—£82 7s. 3d.—or plus inmate workers, 21—£63 15s. 4d.

‡ Patients, 140—£166 12s. 2d.—or plus inmate workers, 6—£159 15s. 3d.

TABLE II.—Statement of Expenditure, David Berry Hospital, for the year ended 31st December, 1939.

Head of Expenditure.	Total.
	£ s. d.
Salaries and Payments in the Nature of Salary	1,917 10 9
Gratuities to Inmates	146 0 0
Provisions	682 4 11
Drugs, Dressings, Surgical Appliances, etc.	312 15 9
Fuel and Lighting	183 5 10
Forage	......
Materials for Minor Repairs, Additions and Renewals to Plant	248 15 4
Transport Expenditure including Freight and Cartage	191 19 5
Postal and Telegraphic Expenses	14 1 7
Medical Fees	162 15 0
Burial Fees	13 19 0
General Expenses	293 7 8
Total	4,166 15 3
Add—Stock on hand 31st December, 1938	117 0 7
Grand Total	4,283 15 10
Deduct—Stock on hand 31st December, 1939	106 8 3
Total Cost	£4,177 7 7

Average daily Population	20
Average Annual Cost per Inmate	£208 17 4
Average Contributions towards Maintenance	£879 3 3

Table III.—Details of beds available and numbers of inmates and persons treated at State Hospitals and Homes of Lidcombe, Liverpool and Newington, Waterfall Sanatorium, Strickland Convalescent Hospital, Randwick Auxiliary Hospital and David Berry Hospital, for the year ended 31st December, 1939.

	Waterfall Sanatorium.	Liverpool.	Newington.	Lidcombe.	Strickland Convalescent Hospital.		David Berry Hospital.		Randwick Auxiliary Hospital.	
	No.	No.	No.	No.	Patients.	Inmate Workers.	Beds.	Cots.	No.	
(*a*) Beds—										
Hospital Division—										
Males	292	309	...	1,045	80	21	...	...	90	
Females	136	...	364	...	40		...	...	61	
General Division—										
Males	...	541	...	857	...	...	...	...	...	
Females	...	...	248	...	...	...	...	...	...	
Total	428	850	612	1,902	120	21	28	4	151	
(*b*) Patients—									Pat-ients.	In-mate Work-ers.
Total inmates on 31st December, 1938	397	812	606	1,595	61	20	21		115	4
Admitted during year	452	2,784	1,195	5,209 (*a*)	1,136	...	412		332	5
Total	849	3,596	1,801	6,804	1,197	...	433		447	9
Discharged	377	2,537	883	4,457 (*a*)	1,126	...	391		93	2
Died	63	309	322	694	...	...	16		204	1
Total	440	2,846	1,205	5,151	1,126	...	407		297	3
Remaining in Hospital on 31st December, 1939.	409	750	596	1,653	71	...	16		150	6
Daily average	407	780	624	1,734	72	...	20		146	...
Number of operations performed	...	447	...	52	...	...	179		...	...
(*c*) Outpatients—										
Number of individuals treated	...	3,289	...	...	...	...	...		19	...
Total number of attendances	...	12,057	...	...	...	...	304		90	...

(*a*) Includes 619 patients transferred to or from other sections.

Report of the Principal Microbiologist for the Year, 1939.

STAFF.

Principal Microbiologist.—Ernest Leslie Morgan, M.B., Ch.M.

Assistant Microbiologists.—Elsie J. Dalyell, O.B.E., M.B., Ch.M.; Keith Harvey Grieve, M.C., M.B., Stanley W. M. King, L.R.C.P. (London), M.R.C.S. (Eng.), Elizabeth L. F. Laurie, B.A., B.Sc., M.B., B.S. (Syd.), Gordon C. Smith, M.B., B.S. (Syd.).

Senior Laboratory Assistant.—John O. Sergeant.

First and Second Laboratory Assistants, Eight Laboratory Assistants, and four Laboratory Attendants.

Clerical.—1 Shorthand Writer and Typist; 1 Office Assistant; 1 Telephone Attendant; 1 Messenger (Temporary).

Sir,

I have the honour to submit the following summarised Report dealing with the work performed in the Microbiological Laboratory during 1939.

The amount of Revenue collected from examinations, Sale of Sera, etc., was £928 9s. 2d.

The volume of work for the year as represented by the number of specimens examined is set out below:—

General laboratory examinations	96,659
Examinations of Rats for Plague	4,708
	101,367

Diphtheria.—During 1939, 8,812 swabbings were examined as compared with 7,863 in 1938. 318 swabbings were examined for Toxicity.

Typhoid Fever.—The incidence of typhoid fever in New South Wales still remains low, 147 specimens of blood for the Widal Test were submitted in 1939. This number is slightly lower than that for 1938 (153), but the number of examinations for typhoid bacilli of urine, faeces and miscellaneous materials is slightly higher than that for the previous year.

Gonorrhoea.—For the first time for many years there has been a decrease in the number of specimens examined for Gonococci, the total number of examinations being 22,323 in 1939 as against 24,712 in 1938. It seems probable that the decrease is due to the shortening of the period of urethral discharge following more extensive use of drugs of the Sulphanilamide group.

Serology—Complement Deviation Tests for Gonorrhoea for the years 1938 and 1939 were 6,722 and 7,925 respectively, an increase of 1,203. The number of such tests is limited by the other demands made on the Serological Branch of the Laboratory, and is not a reliable indication as to the prevalence of Gonorrhoea.

Wassermann Tests carried out during the years 1938 and 1939 numbered 20,278 and 21,794 respectively, being an increase of 1,516. The Kahn Flocculation Test figures were 19,752 and 21,073 respectively, being an increase of 1,321. The number of *Complement Deviation Tests* performed in connection with the diagnosis of *Hydatid Disease* was the same for both years.

Malaria.—During the year 16 slides were examined for Malarial Parasites which were found in four instances (P. Vivax, 3; P. Falciparum, 1). In each case infection was acquired outside Australia.

Milk.—The number of samples of milk submitted by the Milk Board for determination of the bacteriological content was 819 compared with 816 in 1938. The number of samples submitted for examination for Tubercle Bacilli and B. Abortus was 699 compared with 637 in 1938. Of these, one of the inoculated guinea pigs developed Tuberculosis and 81 guinea pigs (11·5 per cent.) showed evidence of infection with B. Abortus.

Tetanus.—One case of tetanus following a miscarriage was investigated during the year. Tetanus Bacilli were recovered from cultures of material removed from the uterine cavity.

Anthrax.—One culture was submitted during the year for examination for Anthrax Bacilli. Examination proved negative.

B. Abortus.—During 1939, 26 samples of blood were submitted for agglutination against Brucella Abortus as against 13 samples in 1938. Of these only one was positive.

Medico-Legal Examinations.—During 1939, 314 exhibits from 113 separate cases were submitted for microbiological tests. Examinations of these exhibits involved 1,070 individual tests.

Randwick Auxiliary (Tuberculosis) Hospital.—In October, Dr. Helms' part time services were made available for pathological work at Randwick Auxiliary (Tuberculosis) Hospital. Her work was mainly Haematological and was carried out on Tuberculous patients.

Laboratory Accommodation.—I would again stress the need for additional laboratory accommodation. Great difficulty is experienced in maintaining the efficiency of the laboratory under the present overcrowded conditions.

E. L. MORGAN,
Principal Microbiologist.

TABLE showing the Routine Examinations made for the Various Branches of the State Department of Public Health, other Government Departments, Subsidised Hospitals, etc.

	Number of Examinations. Comparative Statement.	
	1938.	1939.
Department of Public Health—		
Head Office Submissions	35,154	37,078
David Berry Hospital, Berry	81	124
Lidcombe State Hospital and Home	2,964	3,261
Liverpool State Hospital and Home	683	723
Newington State Hospital and Home	505	363
Waterfall Sanatorium	...	...
Medical Officer of Health, Metropolitan District	16	5
,, ,, ,, Hunter River District	35	37
Randwick Auxiliary (Tuberculosis) Hospital	876	1,125
Commonwealth Government	261	182
State Departments—		
Agriculture and Stock Department	...	...
Education Department	26	95
Child Welfare	...	5
Government Stores Department	...	...
Milk Board	1,454	1,529
Police Department	82	87
Prisons Department (Long Bay Gaol, etc.)	196	144
Public Works Department	6	12
Railways and Tramways Department	1	...
State Insurance Office	...	...
Water Conservation Commission	...	5
Hospitals Commission	...	...
Silicosis Commission	...	...
Aborigines' Protection Board	1	...
Water, Sewerage and Drainage Board	4	2
Private Practitioners	15,325	15,204
Public Hospitals and Institutions other than State Hospitals	34,972	26,069
Municipal and Shire Councils	71	203
Rachel Forster Hospital	...	10,406
	92,713	96,659
Total Examinations—		
General	92,713	96,659
Rats for Plague	4,597	4,708
Total	97,310	101,367

IN the following Statement the Routine Work is divided into sections to disclose the purposes for which the various examinations were made.

	Number of Examinations. Comparative Statement.	
	1938.	1939.
A.—*Microbiological Examinations.*		
1. Of materials from diseased persons and animals—		
Actinomycosis	8	9
Brucella abortus	13	26
Diphtheria (swabbings)	7,863	8,812
,, (toxicity)	427	318
Dysentery	28	9
Gonorrhoea (smears and urine)	24,712	22,323
,, (complement deviation test)	6,722	7,925
Hæmolytic streptococci	171	329
Hydatids (sputa, smears, etc.)	19	19
,, (complement deviation test)	38	38
Leprosy (human)	41	42
Malaria	10	16
Meningitis	85	85
Syphilis (Wassermann reactions)	20,278	21,794
,, (Kahn's flocculation test)	19,752	21,073
,, (spirochætes)	167	362
Tetanus	6	1
Tinea	14	16
Tuberculosis	3,075	3.889
Typhoid (Widal reactions)	153	147
,, (urine, fæces)	67	95
,, (miscellaneous, water, milk, etc.)	23	35
Unclassified : " No growths " from pus, etc.	1,025	941
Typhus	2	9
Vincent's Angina	30	27
Hookworm	2	...
Rat Leprosy	...	...
Undulant Fever	1	...
	84,732	88,340

Division of Routine Work, etc.—*continued.*

	Number of Examinations. Comparative Statement.			
	1938.		1939.	
Brought forward		84,732		88,340
A.—*Microbiological Examinations*—continued.				
2. Examinations for Anthrax—				
Human beings	6		1	
Shaving brushes, etc.	...		...	
Wool	...	6	...	1
3. Of Materials, etc.—				
Chemical closet contents	7		...	
Disinfectants	55		46	
Feathers	...		...	
Sewage, effluents, etc.	4		1	
Soil	...		...	
Water	204		233	
Water from swimming baths	113	383	211	491
4. Examination of Foods for Bacterial Contamination—				
Dried Milk	...		...	
Milk—				
Milk samples submitted by the Milk Board for examination for tubercle bacilli and B. abortus	637		699	
Milk samples for bacteriological count submitted by the Milk Board	816		819	
Miscellaneous milks for bacterial counts, etc.	4		10	1,528
5. Examinations for Food Poisoning	3	1,460	3	3
B.—*Pathological Examinations.*				
1. Of Animals—				
Mammals	...		...	
Fish	...		...	
2. Of Body Fluids—				
Blood for full and differential count	903		886	
,, ,, blood typing	...		11	
,, —coagulation time	4		4	901
Chemical Examinations—				
Blood for sugar	82		77	
,, ,, ,, tolerance	25		110	
,, ,, urea	157		176	
,, ,, ,, creatinin	14		10	
Urine for sugar (quantitative)	15		20	
,, ,, urea	130		123	
Test meal specimens	265		435	
Calculus	14		13	
Miscellaneous	238		380	
Fæces	52		69	
Urine (general examinations)	991	2,890	913	2,326
3. Of Tissues—				
Malignant tumours	486		439	
Tubercular	24		28	
Other conditions	1,441	1,951	1,621	2,088
C.—*Examination of Parasites.*				
Ecto-parasites (fleas, ticks, etc.)	3		5	
Endo-parasites (round and flat worms)	3		...	
Protozoa	18		13	
Insects (including flies and mosquitoes) and spiders	4	28	2	20
D.—*Medico-Legal Examinations.*				
Examination of Exhibits for—				
Blood stains	10		23	
Gonococci	7		17	
Seminal stains	37		49	
Spermatozoa	24		21	
Other examinations	2		3	
Poison tests	...	80	...	113
Blood Donors (2 examinations on each)	...	712	435	435
E.—*Examination of Specimens for Preparation of Vaccines.*				
Preparation of Autogenous Vaccines from sputa, urine, acne pustules, boils, wounds and other septic conditions	471	471	413	413
Total		92,713		96,659

THE following table indicates the Number of Rats and Mice Destroyed and Examined at Sydney and Newcastle during year ended 31st December, 1939.

1939.	Sydney.				Newcastle.			
Month.	*R. R. Rattus.*	*Rattus Norvegicus.*	*M. Musculus.*	Total.	*R. R. Rattus.*	*Rattus Norvegicus.*	*M. Musculus.*	Total.
January	159	2	13	174	...	...	...	...
February	248	82	31	361	...	...	...	...
March	381	41	74	496	...	...	...	...
April	215	53	17	285	3	6	...	9
May	521	109	39	669	...	...	...	...
June	363	72	7	442	...	...	...	...
July	311	120	30	461	5	23	...	28
August	304	101	26	431	1	4	...	5
September	256	56	64	376	...	3	...	3
October	378	79	27	484	4	...	...	4
November	323	41	19	383	3	3	...	6
December	72	...	19	91	...	...	...	...
	3,531	756	366	4,653	16	39	...	55

[1 Graph.]

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